

# InfoWorld

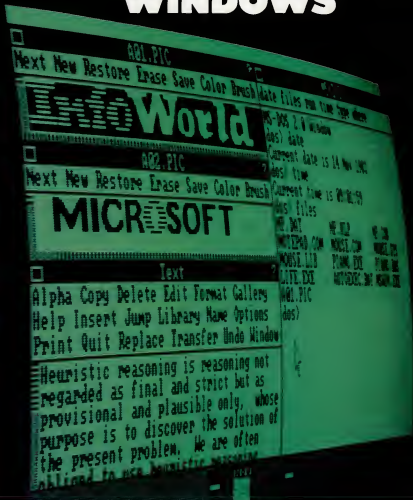
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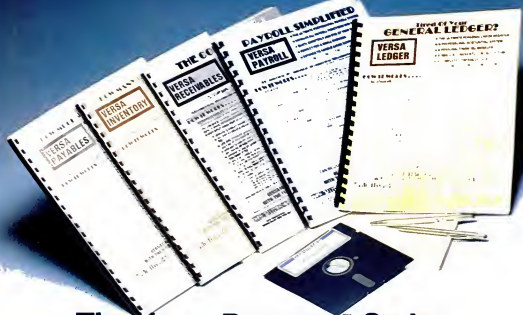
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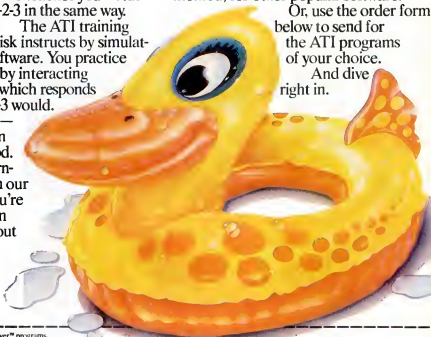
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The Newsweekly for Microcomputer Users

Volume 5

Number 47

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Cover story: Microsoft's Windows, introduced in New York this week, will offer personal-computer users the ability to display several programs or files on the screen simultaneously. Starting on page 32, we discuss the impact this new product will have on the personal-computer industry.

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# Can IBM Make a Mistake?

**W**e are sorry to report that the employees of International Business Machines Corporation do indeed put their pants on one leg at a time. In fact, IBMers — as they are known — are normal people, much like the rest of us, and just as capable of making mistakes.

The company introduced its Personal Computer two years ago and, to its own surprise, has gained somewhere between a 19% and 26% share of the personal-computer market. Since then, many people have come to think that IBM is the perfect corporation, incapable of making mistakes and likely to dominate any market that it wishes to enter.

Last week, IBM finally confirmed that it had indeed created a "home computer." It also confirmed that it can make mistakes: PCjr is a poorly conceived product for the home-computer market today and could end up being an embarrassment to IBM.

IBM made a mistake because it did not understand the needs of the home-computer consumer. With PCjr, IBM did not solve the home-computer industry's most overriding problem—the inability to deliver a *powerful*, all-purpose computer on the cheap. It's become a truism that consumers who really want to do something with the computer they bought for \$150 or \$200 must spend another \$600, or \$1000 or even \$1500 to do it.

During his talk at a recent software conference, Steve Gibson, a software and peripheral developer, actually got down on his knees and prayed to IBM (this is absolutely true — we were there). He prayed that IBM would announce the feature-filled home computer that software developers need to make software that would answer consumers' needs.

IBM has not answered Gibson's prayers. Although the IBM presence might hurt more consumers into a secure attitude about buying home computers, Big Blue has done nothing to help the industry make good on the promises of home computing.

When you finally see IBM's PCjr, you will find that it comes with what we in the industry derisively call a "Chicklets" keyboard, so named because the keys look something like little square pieces of chewing gum. You will also find you'll have to pay a minimum of \$1300 to get a computer with an 80-column screen and a disk drive, and that the printer costs extra. You will also find that the computer has none of the innards that Steve Gibson was so earnestly praying for.

How did the invincible Big Blue make the PCjr mistake? Perhaps a bit of background might explain. When IBM decided to develop its Personal Computer, it asked a dozen of its employees to break off from the company, sent them down to Boca Raton, Florida, and gave them carte blanche to develop a personal computer. During the process, it protected them from pressure from the other IBM divisions that are instructed to operate with more concern for the corporation than the consumer. As a result, the product that that group of people developed — the IBM PC — answered the needs of the customer, not the needs of the corporation.

By the time that IBM decided to develop the PCjr, however, that group of people had been reintegrated into the corporate structure under the grand title of the Entry Systems Division. This time product development was subject to all the pressures of the corporation; the factors of compatibility, serviceability and internal organization superceded the issues of consumer and industry needs that had guided the development of the original PC. The result — the PCjr — is a product that answers IBM's needs — it will probably sell well for a time — but the consumer and the industry have not been well served.

It all goes to prove that IBMers are just as human as the rest of us: they can make a mistake, too.



**Stewart Alsop II**

# Letters to the editor

## Highlight news

Reactions to the new format: It doesn't feel as much like news, in the part that is news. Perhaps a section that looks like news would emphasize that your deadlines haven't slipped with the new format (they haven't, have they?). Different paper, perhaps.

The type under the report card could be smaller.

We'll see how it goes.

Mike Firth  
Dallas, TX

## Unique no more

Just a quick note to register my gut feelings on the new format of *InfoWorld*. First, I have enjoyed *InfoWorld* now for almost two years. It's a well-written nontechnical publication with excellent reviews of software and hardware and with some interesting editorials. But now, you have now tampered with what I thought was an excellent physical format.

*InfoWorld* now looks like many of the other magazines I get, and I find it harder to read than its predecessor. In short, I don't like what you have done. My eyes certainly don't appreciate the new small print style. You had a unique publication; now you have a common one.

Alan M. Coleman  
San Francisco, CA

## News-hungry

I just received the first issue of your new format for *InfoWorld*. Be careful! You border on being just another magazine!

I take *InfoWorld* for just three reasons: News. News. News. I expect it to be plentiful, timely, detailed and prominent.

The details were there. Nice work. Keep it up.

As for prominent, I had to wade through 22 pages of opinion and correspondence to find it, all of which I can find in ample quantities in other magazines. Then the stories read like they just happened to be what was on someone's mind this week, not the latest-breaking hot news fresh from someone's shoe leather.

Emphasize timely. Try putting the day of the week on the column header instead of (ho-hum) This Week. The shape of your newsweekly used to reek of news. Now, the news-hungry can't spot it a mile off. Forget the lead-feature story picture on the cover. Put a picture that says this or these are the latest-breaking stories inside — hot now, cold later!

Plentiful? Only 11 out of 144 pages were under the This Week banner. Not one of them read like News. They all read like history lessons. Only three articles were by reporters. Is that all you have on your staff — 'cause any fool knows that editors spend time reflecting on older news, not combing for the latest-breaking stuff. Better promote some of those editors into reporters. One could get the impression that there was a sigh of relief: "Gee, now we can take it easy, we are a magazine first and a newspaper second."

Yes, I read your other features, and I enjoy and look forward to them. But I want a newsweekly. That's what you claim to be.

How long will a news-hungry person stand outside his favorite news restaurant, before looking elsewhere? I went out magazine shopping the next day.

I'm worried about the pallor of "an old friend in new garb."

Bob Houghton  
Madison, WI

## More Inviting

Congratulations on your new format for *InfoWorld*. The old format of the

## Opinions Wanted

*We want to know what you think about important issues, and we welcome your viewpoints. Please type your opinions, double-spaced, and send them to:*

Viewpoint  
*InfoWorld*  
1060 Marsh Road, Suite C-200  
Menlo Park, CA 94025

weekly newspaper/tabloid was satisfactory, but your new magazine format is eminently more inviting and readable.

Your judicious use and placement of black and white and color is eye-pleasing. I also look forward to your continuing the quality content that we have become so accustomed to in *InfoWorld*.

Chuck Griffith  
Albany, MN

## Shiny paper

I generally like the new format for your publication, and I usually enjoy your coverage. However, you must do something about that terrible shiny paper. I sat down to read the first issue, and all I can remember doing was moving about and changing the angle of the paper so I was not blinded. That paper has to go — it's the worst paper I have ever seen in any publication. I hope you didn't pay extra to make it shiny.

On more careful examination, I realize that it is not just the paper, but the ink that comes out shiny. Color pages almost blind you from the reflected light. I recommend that you get a new printer, or at least get a different printing technology. From my vantage point, the shiny print seriously detracts from your otherwise good publication.

Robert E. Heckert  
Fullerton, CA

## Easy storage

Congratulations on your "new look." Since becoming a subscriber almost two years ago, I have kept all back issues for reference. The new size will simplify storage.

G. E. (Nick) Borst, Jr.  
Washington, D.C.

## Superb job

Just finished reading, from cover to cover, the new format and design of *InfoWorld*. I'm impressed. I really like the new size, the layout and the summary and product details in the software and hardware reviews.

I've read all of the advertisements —



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It came in Tuesday, and it took me almost no time at all to get the hang of it because Friday! works with me, not against me. I've already turned stacks and stacks of paper files into much more efficient "electronic files." And it's so easy to use that even Mr. Bundtweiller can do it.

So now, no matter what Mr. Bundtweiller needs to know—no matter when he needs it—he or I can find it in seconds.

The names and commissions earned by our top 25 salespersons since January 1st.

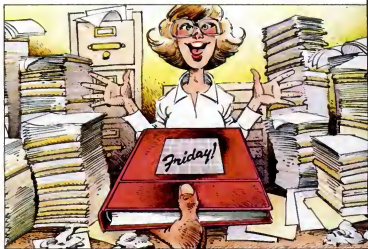
The total number of #3455 Brass Beds sold year-to-date, by region.

A quick report on our cash receivables.

Or the special report for the Board of Directors meeting this afternoon. Mr. Bundtweiller forgot to tell me about it until just before lunch, but Friday! and I got it done in no time at all. It looks gorgeous!

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and that's a rarity for me. Your new format makes them more accessible for reading, compared to your old tabloid format.

In short, I really like the new format, the layout and design. It is also much easier to read. Your design director has done a superb job. All of you should be very proud of your accomplishment.

Harvey J. Brewster  
Albuquerque, NM

## Better color

Bravo! Transitions always bring pains and pangs, but the new format is easier to handle, has better color and, with time, will be a better vehicle for extended content.

*InfoWorld* provides an important informational and educational service to us.

John S. Slorp  
Memphis, TN

## Start at top

I like your new look a lot better than your old look. However, I would like to suggest that, whenever possible, articles and reviews should start at the top of a page and that there is nothing else on either side of the page except advertisements. This makes it a lot easier for people like me, who cut out the articles and reviews for filing by topic.

Gene Sovecka  
Los Angeles, CA

## Wonderful

If anyone tells you the new format isn't wonderful, hit him. If the editor of any other tabloid asks, tell him he's a fool to stay with tabloid. Hip hip hooray!

Walter L. Nissen, Jr.  
Tackoma Park, MD

## Airborne Micro

I have used my Radio Shack 100, purchased in June, aboard several airplanes—on Empire Airlines (an East Coast carrier), USAir, Pacific Express and United. I have had no trouble whatsoever.

Recently, I used it on a United transcontinental flight. I went to the cockpit to tell the flight crew, because I was seated in first class, barely 15 feet away. The flight-crew members said they have seen others using something similar and have not noticed anything amiss in the cockpit. They said the rule they follow is: If the machine transmits, as does an FM radio, it cannot be used; if it doesn't, it can.

FM radios have been known to interfere with airplane instruments, they said. They do not know about emissions from the Mode 100; they are not picked up by their instruments.

Joel Latner  
Rochester, NY

## FileMaster

In your recent review of FileMaster, (Vol. 5, No. 39), it was stated that "file managers should be evaluated by three main criteria," those being ease of use, reporting flexibility and speed of data retrieval. Granted, these are all important points, but reviews of file managers consistently fail to address a fourth point which I believe is even more important: capacity.

After all, a file manager is a computer analog of a filing cabinet, and if you were shopping for a filing cabinet, what is the first thing you would want to know? Obviously, how big it is!

It's great that most file managers can access many records; but if they cannot address more than one diskette of data per file, the real limitations of these systems are much lower.

With all of the file managers available today, there must be at least one which can handle files as large as 40 or 50 diskettes.

Barney Stone  
DB MASTER ASSOCIATES  
Penlynn, PA

## Lost charm

Regarding your new format: Boooo! Hissss! You have lost your charm and readability. Maybe your breezy, sometimes irreverent, contents will still be found amid the slick ads; maybe even the cartoons will reappear (agreed — the contents of *InfoWorld* is what counts, but let's keep our sense of humor); but I fear you will now consider yourselves full members (clones) of the "serious" publications.

I'm sure your editors and art directors will have a greater sense of importance and satisfaction, but I'm not too sure about your readership.

I hope my first impression is faulty.

Thomas Crowe  
El Segundo, CA

## NY syndrome

Your explanation for the change in *InfoWorld* format is plausible, and you are trying to be professional, as always. However, I liked the old format. It

somehow set your magazine apart from the "run of the mill" others. Now it is an effort to scan and, later, read your articles from cover to cover.

It's too bad the New York syndrome knuckled you under, so you would fit the magazine racks, rather than the reader.

Best wishes; you may need it.

Bill Rowland  
Columbus, OH

## Lowers level

Boooo for the new format. From my standpoint, it tends to take *InfoWorld* down to the same level as all the other computer magazines.

Chet Rice  
Kentfield, CA

## Suggestions

I like your new magazine format very much. I do, however, have a couple of suggestions: (1) put your address in the Letters section, so that we don't have to search through the fine print, and (2) include the hardware-system information on the software report card, in a prominent place.

D. Carroll  
Spokane, WA

Please address your letters to:

Letters  
*InfoWorld*  
1060 Marsh Road, Suite C-200  
Menlo Park, CA 94025

## Errata

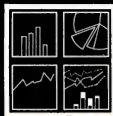
The phone number for Learning Shack, the publisher of Homework software (reviewed in Vol. 5, No. 43, page 55) has been changed to (714) 863-0415.

The maximum number of records possible when you run ColorBIZ Inventory software (reviewed in Vol. 5, No. 46) with a hard disk is 32K bytes, not 64K bytes.

Ovation Technologies, manufacturer of the Ovation integrated software package for the IBM PC and PC-compatibles reported on in Vol. 5, No. 45, is based in Canton, Massachusetts, not Wellesley.

In the sample screen from Pole Position (Vol. 5, No. 45, page 73) we erroneously identified Activision as the game's manufacturer. Pole Position is made by Atari.

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# New systems stand on 3 legs

BY LANNY COTLER  
Contributor

**T**he soul of a new system: is it the software or the hardware? Perhaps it is neither. Consider instead that stepchild, the documentation.

Although it is often indispensable in the process of getting new systems or software to work with ease, purpose and efficiency, documentation has been traditionally relegated to a status of secondary importance, overshadowed by the horns and whistles of hardware and software.

No longer! The humanization of the computer industry has begun. Its hallmarks are superior documentation and an open and responsive channel of communication between producer and consumer. I am convinced that the success of computer-product companies will derive in significant part from the companies' ability to form an intimate and important bond with their users, a bond that generates product loyalty. It has been shown that the attitudes formed during the users' first learning sessions influence its word-of-mouth advocacy for the product, user-group popularity and future sales.

No one has to convince us of the growing need and rising demand for fine documentation. Hardly an issue of *Byte*, *Popular Computing*, or *InfoWorld* fails to mention this. And yet, how rare it is to hear of someone raving about an excellent piece of documentation. The problem is this: presenting technical information is not enough — that's merely leading the horse to water.

While the phrase "user friendly" has already become a cultural cliché, the truth is the computer industry has only just begun to understand the intricate possibilities of the term. "User friendliness" can no longer be hyped; it must be consciously worked out and implemented. It takes professional expertise to develop.

A new system stands firmly and equally on three legs, not two; namely, hardware, documentation and software.

Superior documentation integrates hardware and software so that the entire system becomes an extension of the user. Discerning, sophisticated users are al-

ready quite aware of this, and competition will soon make it an industrywide criterion of excellence.

Was your documentation written by someone who understands how your system works but not how people learn? Engineers create hardware. Programmers create software. Both of these are specialized tasks.

The term *technical writer*, however, simply does not convey the worth, scope and expertise of highly skilled, professional documentation writers. For example: often overlooked is the tone of the documentation. The tone of any communication — written or verbal — not only sets up the initial bond between the user and the product; it can also effectively maintain it.

The tone actually constitutes the "environment" of the documentation. Is it conducive to learning? Does it foster good attitudes and habits? Does it make a pleasure out of what would otherwise be an onerous task?

Users — whether they be corporate executives, school superintendents, heads of household or students — will be deeply grateful if they are provided with thorough, comprehensible and, yes, even inspiring documentation. Perhaps an occasional newsletter from the manufacturer, is a good idea, too; it would serve to remind users that the producer is still there, supporting the product with customers in mind.

The finest software and hardware are only as good as their usefulness and ease of use to their owners. Superior documentation teaches users how to "think system and implement system." When you come right down to it, documentation is the least expensive component of the triad to develop — even if you commission the best!

The industry has provided us with excellent hardware and software. Now users are asking for superior documentation. A few far-seeing companies are in tune with this modern temper. They understand the need for experts to support all three aspects of their product. Good professional writers are still scarce, and they are usually picky about the commissions they take on. Nonetheless, I hope more purveyors of fine hardware and software seek them out. It will be well worth all our whistles.

*Lanny Cotler is a former Hollywood screenwriter who has recently become interested in personal computers.*

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Wordstar will edit files of almost any size. Ready~Writer, however, limits your files to 60,000 characters on a 16-bit computer (like the IBM PC) with 128K of memory. On smaller 8-bit computers, Ready~Writer will handle files of about 20,000 characters in size.

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# Clapp-Trapp



## BY DOUG CLAPP

Contributor

**B**e glad you're not trying to sell an "advanced, full-featured, reasonably priced communications program" to the IBM Personal Computer market. Andrew Fluegelman got there long before you did.

PC-TALK and, more recently, PC-TALK III have become endemic among IBM PC users. *Epidemic* would be the word of choice among communications software vendors.

For vendors, the bad news is this: PC-TALK, simply, is a superb program: great features, fast (if compiled), extensible and well documented.

And free.

Then there's PC-FILE. PC-FILE is also powerful, flexible and free. The newest version supports up to 10,000 records, sorts fast, works with files from all popular "calcs" and even dazzles you with color.

Author Jim Button reports that one-button graphs are in the works. Stay tuned.

The new freeware kid is FRED. That's for *Free Editor*. It had to happen.

After it had spent thousands of dollars for ads, wouldn't it be ironic if Leading Edge's soon-to-be-released word processor was torpedoed by FRED?

All that's missing, for IBM PC users, is a free spreadsheet. Don't hold your breath; programming a spreadsheet is not the most difficult task in the world.

Free is a good price. Twenty or 30 bucks is also a good price; \$700 is not a good price. If you open the window and lean out, you can almost hear the corporate teeth-grashing.

Obviously, this is good news for us consumers. Prices have already begun to fall and should fall more. And not just in the IBM market; Penguin Software recently

lowered prices across the board for its Apple software packages. The packages now cost \$19.95. Penguin's Mark Pelczarski claims to be happy with the decision. "We figured we had to increase sales 70% to break even," according to Pelczarski. "Instead, we started selling three or four times as many programs."

I must add that \$20 a pop is the lower limit. Check out the prices for full-page ads in computer magazines. *Creative Computing* gets \$4000 — \$5000 a page; *Popular Computing* wants \$6000 — \$8000 and *Byte* is in five figures. And documentation costs money, as does support, manufacturing and all the rest.

So expensive software will be with us for a long time. Most businesses feel more comfortable with Condor than with PC-FILE. And FRED is obviously no match for Edix, Perfect Writer, FinalWord, Palantir or even the dreaded WordStar.

Freeware documentation is often surprisingly good, but there's a limit to how much text a disk can hold, and who wants to wait while a 100-page fanfold "manual" is laboriously spun from the printer?

The free programs might even increase sales of more expensive commercial software. This is just a guess and possibly a wrong guess. But I have a hunch that after getting a taste of, say, what a data base is all about (a la PC-FILE), many buyers would go out and buy a commercial data base.

The people who didn't "go commercial" probably wouldn't have bought the \$700 data base in the first place, so no sales were lost.

Right or wrong?

Probably wrong in the case of PC-TALK III. Sales of commercial communications programs are certainly less than they would be in a PC-TALKless world. There's no other explanation for sluggish sales of excellent programs such as Hayes' Smartcom II.

What can we conclude? First, that many people like to program, are good programmers and enjoy sharing the wealth. Second, that software prices may, indeed, fall. But probably not by much.

Finally, it is possible for a freeware program to seriously bedevil commercial software vendors.

Fairly *no harm* conclusions. Adds a certain credibility, though, don't you think?

●



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# Computer Illiteracy



BY JOHN BARRY  
Book Division Editor

**R**ecently I was rereading Mark Twain's classic essay "Cooper's Prose Style" (in *Letters from the Earth*), lambasting *Last of the Mohicans* by James Fenimore Cooper. I realized that Twain's analysis of Cooper's style as bloated and effete could apply quite aptly to many of the PR releases we receive at *InfoWorld*.

Twain was obviously no admirer of Cooper's writing. According to the editor of *Letters from the Earth*, Bernard DeVoto, Twain had listed "nineteen rules" governing literary art in the domain of romantic fiction, in "Fenimore Cooper's Literary Offenses." Twain claimed that Cooper's *Deerslayer* violated 18 of the 19 rules. Some of the rules Cooper broke:

Rule 12: "The author shall say what he is proposing to say, not merely come near it."

Rule 13: "Use the right word, not its second cousin."

Rule 14: "Eschew surplage."

Rule 15: "Do not omit necessary details."

Rule 16: "Avoid slovenliness of form."

Rule 17: "Use good grammar."

Rule 18: "Employ a simple and straightforward style."

As I pondered these rules and continued to read Twain's indictment of Cooper's style, it occurred to me that much of what Twain had to say about Cooper's writing applies to many computer-company PR releases, some of which can be interpreted as "romantic fiction."

Before I give some examples, it's interesting to note the definition of *cooper* in *The Oxford English Dictionary*: "to 'rig up,' furbish up." An example of said usage from 1829: "I employed my leisure to peruse Mure of Auchendrane's trial, out of which something might be coopered up for the public [my emphasis]."

Now take a look at the lead sentence from a "news release" that *InfoWorld* received recently: "In a move that will add a rich base of applications packages to its UNIX-based line of commercial and business computer systems, Plexus Computers, Inc., a leading manufacturer of 16- and 32-bit supermicrocomputers, today announced agreements with three software manufacturers to distribute 'bridge software' products that allow Plexus users to run software written for Digital Equipment Corporation (DEC), Wang and Basic Four minicomputer systems."

This 68-word sentence clearly violates Twain's Rule 14. Though excessive in length (five pages), this release does provide relatively concrete information, which is conspicuously lacking in this excerpt from a release that actually arrived in the mail:

"Sysgen, Inc. has received a contract from ?????? valued at approximately \$? million to supply up to (??NUMBER) of its IBM PC compatible....., a wholly-owned subsidiary of ?? recently signed a \$10 million agreement with IBM....?? chose Sysgen over the competition because of performance," said Sysgen's Director of Marketing." (Talk about releasing products before they're ready—this is ridiculous. I can just hear the marketing guy making the announcement: "Question mark Question mark chose Sysgen....")

This release egregiously violates Rules 12, 15 and 16.

Let's see how a few other PR releases do when stacked up against some of Twain's rules.

"CORTICAL Corporation, an international software company created by former M.I.T. graduates with offices in Paris and New York, gave on September 20, 1983 at the Westbury Hotel in New York a world premiere presentation of its new..." Here we find violations of Rules 16 and 17.

"Tomorrow's micro users will need constant hand holding from computer technicians." This passage seems to be about very user-friendly technicians. It blithely breaks Rules 12, 13, 16 and 17—in only 11 words.

How about this: "Pyramid Technology will be attending COMDEX/Fall in Las Vegas this year. Not startling news except that Pyramid is a high-end, very powerful

supermini computer and COMDEX is a micro show." Rules 12, 14, 16 and 17 are the victims here.

Think of other PR releases you may have seen...and consider the words of Mark Twain.

"Frequently [Cooper] will explain and justify little things that do not need it and then make up for this by as frequently failing to explain important ones that do need it."

"You will notice [Twain's editing of a Cooper phrase] is more straightforward and business-like, and less mincing and smirky than [the original phrase]."

"Style may be likened to an army, the author to its general, the book to the campaign. Some authors proportion an attacking force to the strength or weakness, the importance or unimportance, of the object to be attacked; but Cooper doesn't. It doesn't make any difference to Cooper whether the object of attack is a hundred thousand men or a cow: he hurls his entire force against it. He comes thundering down with all his battalions at his back, cavalry in the van, artillery on the flanks, infantry massed in the middle, forty bands braying, a thousand banners streaming in the wind."

"This was a mere statistic; just a mere cold, colorless statistic; yet you see Cooper has made a chromo [lithograph] out of it. Cooper spent twenty-four words here on a thing not really worth more than eight."

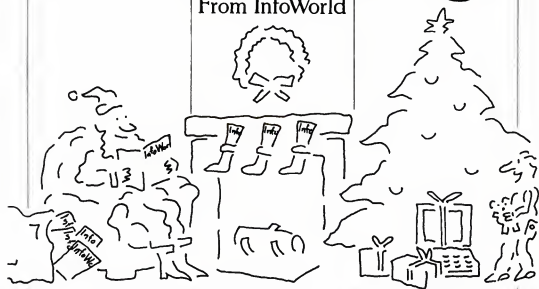
Twain's attack on Cooper's prose is many-pronged. He is lambasting Cooper specifically, and as a "modern" writer, he is ridiculing the pompous prose evident in the passages he has selected from this "great" American writer.

On an abstract level, Twain's criticism of Cooper applies to any written communication — be it Cooper's, a PR writer's or a computer-documentation writer's. The 7 of 19 rules listed above are nothing more than basic precepts of decent writing.

In this age of triviality, hype, indiscriminate use of jargon, newspeak and psychobabble, perhaps all of us who "cooper up" prose for the public should read Twain's essay on Cooper's style. ●

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# IBM cracks open the Peanut's shell

BY PEGGY ZIENTARA

Senior Editor

**E**nding months of speculation, IBM last week unveiled its long-awaited home computer, PCjr, previously referred to as the Peanut.

Conforming generally to descriptions the press had obtained prior to the announcement (and reported two weeks ago in *InfoWorld*), the Intel 8088-based PCjr will be on display in some retail outlets by December, but not available for sale until early 1984.

IBM has no plans to sell the machine through mass merchandisers such as K mart and Toys R Us, which already carry lower-priced home computers from Atari, Coleco and Commodore.

Designed for home, classroom and office use, the machine comes in two versions: a bare-bones 64K Entry Model, which runs cartridge software, has a 40-

column-display ability and a cordless infrared (IR) keyboard, for \$699; and an Expanded Model with 128K RAM, one disk drive and two cartridge slots for \$1269.

The keyboard has a standard Selectric-style layout that differs slightly from the IBM Personal Computer's keyboard. It has 62 color-coded keys. Although the more compact PCjr keyboard doesn't have the ten special-function keys found on the left side of the PC, the specially color-coded keys can be used to perform the same functions.

IBM made no formal presentation or remarks at the unveiling of the PCjr at its corporate building in New York. Instead, it invited the press — representatives from the general and trade media — to wander at will through a display of a half-dozen units, manned by IBM public relations and engineering personnel.

Both PCjr systems use DOS 2.1, a new

version of PC-DOS, the standard operating-system software for the IBM PC. DOS 2.1 is included with PCjr, but can also be purchased separately for \$65, if, for example, you want to run PCjr software on the IBM PC or PC XT.

For about \$600, you can upgrade the Entry Model with a 64K RAM cartridge and 80-column display (\$140) as well as a 360K disk drive (\$480). Additional expansion cartridges make it "theoretically" possible to outfit the PCjr with a maximum of 640K RAM, the same as the PC, a spokesman said.

A typical configuration for family use — an enhanced PCjr with a connector for a television set, an IBM PC Compact Printer, DOS 2.1 and Cartridge BASIC — would cost \$1614 retail.

IBM announced several options for the PCjr, including an internal 300-baud auto-dial auto-answer modem (\$199), a 50-character-per-second thermal printer



A typical configuration of IBM's PCjr with 128K RAM, one disk drive, keyboard and compact printer will retail for \$1614. The monitor is extra.

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**DIGITAL MARKETING**

(\$175 plus \$40 for adapter), joysticks (\$40) and more than a dozen software programs.

New software, specially designed for PCjr, was also introduced. It includes IBM PCjr BASIC (\$75), Home Budget, jr. (\$45), HomeWord word processor (\$75),

The PCjr features more color-graphics enhancements than the PC: 160 × 200 pixels in the 16-color mode; 320 × 200 pixels in the 4-color mode; and 640 × 200 pixels in the 2-color mode.

The unit's keyboard is usable up to 20 feet away from the console in the line of

rubber-domed "chiclets." In situations where several PCjrs with keyboards are in use (such as in a classroom), keyboard cords will be needed to eliminate the possibility of interference problems from multiple IR transmissions. A cord for the keyboard costs \$20.

It is also "possible" that the IR keyboard could use the same frequency as some other household electronics products, an IBM spokeswoman acknowledged, with a resulting potential for interference.

The PCjr comes with a 12-month warranty and can be serviced by any of IBM's 1100 authorized dealers. Warranty extensions and maintenance agreements will be offered through IBM's Customer Service division, as well as through a Dealer Service Option package available to authorized dealers. Individual dealers can also offer their own warranty-extension and service plans. ●

## The PCjr features more color-graphics enhancements than the IBM PC.

Personal Communications Manager (\$100) and several games. PCjr owners also get a software "sampler" diskette that tells them what they can use the system for and an "exploring" diskette that shows how the system works.

The users' manual is written in a conversational, chatty style.

sight. The keyboard is powered by four AA batteries (not included), which an IBM spokesman estimated would last three months with heavy keyboard usage. One selling point of the keyboard is its built-in, low-power ability to turn itself off when a user is not typing. The keys themselves are a drawback, however. They are

## Industry reacts to PCjr

BY SCOTT MACE & PAUL FREIBERGER

Senior Editors

IBM's PCjr drew mixed reviews from an opening-week industry audience, following a few days of saturation coverage by the nation's press.

The critics applauded IBM for its stabilizing influence on the tumultuous home-computer market, even though months of rumors about IBM's Peanut helped cripple that market. The critics were disappointed, however, that IBM will not be shipping PCjrs to stores until after Christmas.

Apple Computer is not jumping with joy over IBM's PCjr announcement, but neither is the company shaking in its boots.

"I guess it's kind of what everyone expected," says Apple president John Sculley. "I don't think there were any surprises. There's been so much talk about it for months upon months. We'll have to see if it lives up to all the expectations of it."

"We're solidly entrenched," says Apple II inventor Steve Wozniak, currently an engineer at Apple. "We have a ton of software."

Wozniak says the PCjr "doesn't seem like it's as much of a machine as what we're getting ready to introduce," apparently referring to Apple's Macintosh computer, rumored to be under development but not officially acknowledged by Apple.

In the short term, Apple hopes to get a jump in the all-important education market by offering schools a 30% discount on Apple IIe computers and six-for-five deals on other Apple products (see related story, page 38). Much of the competition between the Apple IIe and the PCjr will take place in the education market next year.

George Morrow, another veteran of the microcomputer wars, calls the PCjr "toylike" and says Commodore's president, Jack Tramiel, "is going to make mincemeat of these people." Morrow is president of Morrow, Inc., a business-computer manufacturer located in San Leandro, California.

Morrow refers to Commodore's aggressive pricing strategy, which has made the Commodore 64 the fastest-selling home computer on the market today.

The delay of PCjr shipments is "a letdown for us," says William H. Bowman, chairman of Spinnaker Software, a major educational-software company in Cambridge, Massachusetts. Bowman believes that the PCjr is the start of a movement to put low-cost computers "back in the \$400 to \$800 range."

Bowman says the home-computer industry is in a strange state right now. "No hardware company is paying attention to the consumer. They're all busy trying to kill each other or maximize the bottom line." Bowman believes IBM brings needed support to the home-computer user and the industry at large.

Bowman claims that the PCjr is "an

aggressively-priced machine" that "will finally address the consumer. The whole business will turn around."

But for now, with the PCjr delayed, Spinnaker "has the worst of both worlds," Bowman says, with lack of customer support from other home-computer companies and slow software sales caused by consumers waiting for the PCjr.

Bowman adds that IBM's delay will quickly deplete already scarce supplies of Commodore 64 and Atari computers, leaving only the Apple IIe in plentiful supply by Christmas.

Douglas Carlston, president of Broderbund Software of San Rafael, California, says the PCjr "looks like a good machine. It will probably sell well."

Carlston notes, though, that "there's no reason for people to sell Apple stock." Does that mean Apple will maintain its lead in the Apple IIe price range? "That depends on how Apple responds to the PCjr," Carlston says. "IBM is giving Apple plenty of time to react. We've had one real steady customer for the past few years—the Apple user," Carlston says. "We're hoping now we'll have two."

Broderbund hasn't announced any products for the PCjr yet, but Carlston says the company has "plenty of IBM PC programmers."

Carlston and many other software developers who haven't seen the machine yet can't believe IBM chose to put a "chiclet" keyboard on the PCjr, rather than full-travel keys.

Elvin Bollet, executive director of the Silicon Valley Computer Society, the largest IBM PC users' group on the West Coast, says the PCjr's chiclet keyboard and its lack of function keys will disappoint many IBM PC users.

Others thought the keyboard was innovative. "The PCjr is a breakthrough in a number of ways," says Joyce Hakansson, president of Hakansson and Associates, a Berkeley, California, software-development firm.

Hakansson says the PCjr will cause consumers to associate reliability and stability with home computers. She adds that the keyboard is adequate for any use, "unless you're doing word processing."

While working for Children's Television Workshop, Hakansson designed an innovative computer system whose keys were associated with pictures instead of

words. The PCjr's keyboard overlays, made possible by the chiclet arrangement of the keyboard, will make possible similar special uses of the keyboard.

"That's exactly the way to go with young children," Hakansson says. "Icons and graphics convey messages very well." She adds that it's a "clean" system, which can label only those keys necessary for the program in use. Other manufacturers have tried to use stickers on keytops instead, but these tend to fall off and get lost.

The Learning Company (TLC) of Menlo Park, California, is likely to make use of keyboard overlays when three of its

learning games are released by IBM in January. Some of TLC's innovative software appeals even to three-year-olds.

Atari, which is just now shipping two new home computers to stores, says the PCjr's announcement has no effect on sales of its products. Company spokesman Bruce Entin says IBM is appealing to a higher-priced market. "They will get their share of the market, and we will get ours," Entin says. He adds that demand for the two new Atari computers is "far exceeding supply."

"Mostly, the announcement means we can all go back to work," Carlston says. ●

## Apple IIe will run MS-DOS 16-bit software

BY PAUL FREIBERGER  
Senior Editor

First there was the CP/M card; now there's the MS-DOS Rana box.

Rana Systems of Chatsworth, California, has announced an add-in for the Apple IIe and II Plus, the Rana 8086/2, that will run Microsoft's popular 16-bit operating system, MS-DOS.

The company plans to begin selling the product in February.

Rana's approach is similar to, though more elaborate than, the approach taken by Microsoft several years ago when it introduced the Z80 card that allowed the Apple to run popular CP/M operating-system software.

Rana will include MS-DOS with the hardware, which has the endorsement of Apple Computer. Rana will also offer Microsoft's window manager (see cover story on page 32).

Apple is arranging for application-software developers to convert programs to run on the new peripheral.

The product consists of a board that plugs into the Apple. The board connects to a small box containing an 8086 processor and dual disk drives. You can use the drives in place of current Apple drives. The Rana drives are dual-sided, double-density and read both Apple- and IBM-formatted diskettes.

"The Rana box gives us the gateway to the MS-DOS world," says Apple president John Sculley.

Rana Systems has not set a price on the product yet, but senior vice-president Michael Joseph says it will cost less than \$2000, and he confirmed that Rana and Apple want to make an Apple IIe with IBM PC compatibility cost less than an IBM Personal Computer.

The box contains 256K RAM, expandable to 512K, for running MS-DOS software. When you use Apple software, the standard processor and memory on the Apple is employed.

The Rana box contains two pages of

video memory, as opposed to one page on the IBM PC. This means that it should be able to display graphics faster than the IBM PC.

"We can't guarantee 100% compatibility [with the IBM PC], but it looks reasonably compatible," says Joseph.

Apple's marketing manager, Ken Seto, says that Apple has been providing software developers with the technical details of the Rana 8086/2 and that "most of the popular applications [for the IBM PC] will be available." ●

## TI retires from home-computer market

BY SCOTT MACE  
Senior Editor

Texas Instruments, admitting that sales of the 99/4A home computer have not soared as expected, is pulling out of the home-computer business.

In the 99/4A, a 16-bit home computer first introduced in 1979 at \$1050, is now selling for \$50 in many stores. Before the announcement, it sold for \$199 with a \$100 rebate.

In a statement issued by TI chairman Mark Shepard, Jr., and president J. Fred Bucy, TI said "retail sales of 99/4A home computer consoles and software in the third quarter were disappointing. Inventories at retail remained high, limiting orders and resulting in an operating loss for the quarter." That loss, after taxes, was \$110.8 million.

Shepard and Bucy stated that "it became clear that fourth quarter demand would not be sufficient to prevent large additional losses. In order to limit further financial drain on TI, we have made the decision to withdraw from the consumer home-computer business."

"New product development activity has ceased," Shepard and Bucy continued. "Production of 99/4A hardware will stop in November, requiring significant personnel reductions in the Consumer Group."

TI pledged to continue to service and support the 99/4A. According to spokesman Norman Neuriter, TI has sufficient parts to honor all owners' one-year warranties and servicing for some time after that. "It is our intention to continue to service and support the machine," Neuriter says.

TI 99/4A owners who intend to expand their systems would be wise to purchase disk drives and other peripherals immediately, however, since these units are already in short supply, and "when they're gone, they're gone," according to Neuriter.

Servicing will be through TI Service Centers in major U.S. cities, or consumers can mail equipment directly to Lubbock, Texas, for repair, Neuriter says.

The company will continue to make and sell the TI Professional Computer, which operates under MS-DOS and can run programs adapted from the IBM PC. The TI Pro reportedly is outselling all MS-



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DOS computers except for IBM's and Compaq's micros.

The rise and fall of the 99/4A was a dramatic one. Introduced in 1981 to replace the faulty 99/4, sales of the 4A took off as TI and Commodore entered a cutthroat price war at the start of 1982, each company cutting its prices to try to grab a leading share of the under-\$200 home-computer market.

TI's fortunes peaked in January, when sales of the 99/4A reached an estimated 30,000 a week. Then Commodore slashed

its price on its VIC 20 and the more powerful Commodore 64, and 99/4A sales fell. In April TI canceled plans for the 99/2, an entry-level "computer literacy" machine, and in June, after privately showing a 64K machine (the 99/8) to selected dealers, TI decided not to announce it at the Consumer Electronics Show. Last month TI announced that the 99/8 would not be released, which foreshadowed its decision to drop out of the home computer-market entirely.

After the TI announcement, the com-

pany's stock on Wall Street rose more than \$22 in one day.

Commodore won the battle chiefly on its ability to cheaply manufacture its units overseas. TI never developed such offshore production facilities.

Egil Juliusen, chairman of Future Computing, a market-research firm based in Richardson, Texas, estimates that when the dust settles after Christmas, TI could end up having sold 2 million 99/4A computers in all, giving it the largest "installed base" of any computer. If a fair number of those machines stay in use, Juliusen believes there could be a "burst of software" for the 99/4A before it fades into history.

Some companies, which only recently signed agreements with TI to manufacture their software, could lose big. TI now may not release their software, and by the time the independents retrieve the rights to their products, the opportunity could be gone.

The Milton Bradley Company of Springfield, Massachusetts, which developed The Expander, a voice-input module and software for TI, is a case in point. According to Milton Bradley spokesman Charles Perrotet, last month the company had begun production of The Expander and had sent the code for the accompanying software to TI. Now Milton Bradley has halted production of the speech module.



The TI 99/4A is another casualty of the current shakeout in the home-computer industry.

## New laws may penalize Bulletin-board hackers

BY JOHN MARKOFF  
Senior Editor

If you operate an electronic bulletin-board system and live in Wisconsin, in several months you may need to carefully police what information users leave on your computer.

In the aftermath of the widely publicized computer capers of the 414 gang this summer, the Wisconsin legislature is preparing to pass a new computer-crime bill specifically targeted at computer "hackers."

The 414 group consisted of teenagers who illegally entered several computer systems around the country, including a nonclassified system at the Los Alamos National Laboratory and a computer at the Sloane-Kettering cancer-research center in New York.

The new law, which has already passed the state assembly and is now in committee before the Wisconsin Senate, includes

provisions that will make computer-tampering a felony punishable with a fine of up to \$10,000 and imprisonment of up to ten years, for anyone convicted of creating a life-threatening situation through destruction or alteration of computer records.

Lesser violations would be misdemeanors subject to a \$1,000 fine. The law makes software programs that search through local telephone exchanges for computer dial-up tones illegal. Such a program prominently figured in the movie *War Games*, which has sparked widespread national concern about computer security.

The law also provides recourse for "manufacturers and trade associations" to close down bulletin boards used by hobbyists that include information on how to break into computer systems.

Geoffrey Goodfellow, a technology consultant at SRI International in Menlo Park, California, who recently defended the concept of hacking before a congressional committee, said that he felt provi-

sions of the law that penalized life-threatening tampering with large computer systems were necessary, but that the provisions relating to personal-computer bulletin boards sounded "Orwellian."

According to Dick White, executive assistant to Assembly Majority Leader Gary K. Johnson, the law would give private business groups the ability to bring civil suits to force bulletin-board operators to close down their systems if they pass illegal information. White said that the new law will also lower the legal standards of evidence necessary to bring a conviction against a suspected computer criminal.

He said that currently between 15 and 20 states have computer-crime laws that are modeled after a California law. New federal computer-crime statutes are also currently being considered.

White said that the California law is addressed to computer criminals who break into systems for financial gain. He said the new law is targeted at "hackers" who may search through or damage mainframe computers as a hobby. This law is targeted at the seemingly innocuous illegal computer break-ins that potentially may create a major risk over the next decade," White argued.

# Graphics package presented for LisaDraw

BY BARBARA WIERZBICKI  
Reporter

**B**usiness and Professional Software (BPS) of Cambridge, Massachusetts, recently demonstrated a new business-graphics package designed to be used as an adjunct to the LisaDraw graphics program for the Lisa computer.

The product, called Art Department and priced under \$200, features a library of graphics images that enhances LisaDraw's current capabilities. Similar to clip art used by graphic artists, Art Department is a stored collection of generic images, such as an hourglass, a telephone, a map of the United States and so on, that can be used to enhance a

business-graphics presentation.

The program lets you create and overlay images and text of varying sizes and shadings. "Art Department gives a person preparing a presentation a lot of options," said BPS art-department manager Catherine Betz. Betz, who designed the images used in Art Department, believes that having a data base of ready-to-use graphic symbols "bridges the time-factor problem and makes LisaDraw a truly justifiable tool."

There are several drawings to be found in each of Art Department's 12 major categories or "folders." For instance, in the Standard Form category, you will find graphic representations of a calendar, an invoice and a statement form.

The major categories include Demographics, Decorative Elements, Graphs and Axes, Maps and Flags, Symbolic Images, Alphabet Extension and Dotted Lines and Shapes. The images contained in Art Department will be replicated in the documentation, allowing users to leaf through the manual and pinpoint the desired image before calling up the folder on the screen.

Art Department is slated to become available by the end of 1983. According to BPS director of marketing communications Marilyn Darling, the company chose Apple's business computer because "Lisa is a very good presentation machine."

Future plans at BPS include releasing updated versions of Art Department with generic images and customizing the product for use in vertical markets.



Art Department is a new BPS graphics package for the Apple LisaDraw.

# UCLA student penetrates DOD network

BY KATHERINE HAFNER  
Contributor

**A** college sophomore was arrested earlier this month and charged with 14 counts of felony after he allegedly broke into some 200 computer accounts at computer sites around the world linked to the U.S. Department of Defense's (DOD) Advanced Research Projects Agency Network (ARPAnet).

Ronald Mark Austin, 19, a physics major at the University of California at Los Angeles, was arrested at his home in Santa Monica, California, on November 2 and held on \$10,000 bail. Bail for Austin was set at \$2000 by Los Angeles Municipal

Court Judge Michael Tynan, who told the defendant to stay away from computers and return to court for a preliminary hearing December 2.

Austin's defense attorney described him as an outstanding and law-abiding student.

Austin reportedly used his home computer to gain access to 14 sites participating in ARPAnet. He allegedly tampered with several hundred computer accounts, and in some cases destroyed information files.

Austin faces 14 counts of maliciously accessing information at institutions doing research under DOD grants and single counts of theft and receiving stolen property.

If he is found guilty, Austin faces penalties ranging from 16 months to three years in prison and a \$5000 fine on each

count, with a maximum sentence of six years.

"This is more than a prank pulled by a young kid playing games on his computer," said Al Albergate, press secretary in the district attorney's office. "We estimate it will cost all these different agencies and institutions hundreds of thousands of dollars to reprogram their systems."

Alan Erskine, a spokesman for the Mitre Corporation in Bedford, Massachusetts, an ARPAnet participant, said Austin "was able to access one of Mitre's systems, and through that he accessed a number of accounts... but none of those accounts had anything sensitive or classified."

According to District Attorney Robert Philibosian, the tampering could cost as much as \$200,000 to correct because of the massive reprogramming needed and damage to data linking various computer systems across the United States and Europe.

In addition to the Mitre Corporation, Austin allegedly tapped into several other sites: the Naval Ocean Systems Center in

Katherine Hafner is a staff writer covering communications for Computerworld in Framingham, Massachusetts.

San Diego, California; the Naval Research Laboratory in Washington, D.C.; the Rand Corporation, in Santa Monica, California; the Telecommunication Administration in Norway; Purdue University in West Lafayette, Indiana; BBN-Communications Corporation in Cambridge, Massachu-

setts; the University of California at Berkeley; the University of California at Los Angeles; the University of Wisconsin; SRI International of Menlo Park, California; Computer Science Network of Madison, Wisconsin; Cornell University in Ithaca, New York; and Information Sci-

ence Institute of Marina Del Rey, California.

Two other youths also penetrated the networks, according to a district attorney's report. Authorities refused to disclose whether other arrests were expected.

## New home computers, portables shown in Japan

BY LUC SALA  
Contributor

The recent Data Show '83 in Tokyo, Japan, revealed that Japanese manufacturers are concentrating a lot of their efforts on getting new computer buyers. Standardization in the inexpensive home models is clearly the tack the Japanese are taking to help reach this goal. They introduced several new home computers based on the MSX (Microsoft Extended BASIC) hardware/software standard being promoted by the U.S. microcomputer firms Microsoft and Spectravideo in conjunction with at least a dozen Japanese manufacturers.

As Takanobu Ito, a spokesman for computer-center corporation Stratford, said: "MSX will expand the home-computer business in Japan enormously. In the under-\$200 class, this provides a uniform standard and will lead to more sales of Japanese hardware and software. The features of MSX are so limited, that we see practical applications only in the recreational and maybe home-educational market.

"For more business-oriented applications, MSX is not really appropriate. Even for the home, the MSX standard is too limited. Future adaptations are possible, but the interfacing of MSX is limited."

In the meantime, most of the major Japanese manufacturers have announced



The keyboard on NEC's Japanese personal computer supports the kanji and katakana character sets.

or launched a MSX machine. Software for MSX micros is available from several sources, and ASCII Publishing, which represents Microsoft in Japan, is promoting MSX heavily. Although MSX machines might have a limited lifespan, their low cost makes them the most effective way to promote computer literacy in Japan. What Clive Sinclair did for England with the inexpensive ZX80 and ZX81 micros, MSX is likely to achieve for Japan.

Because of the elaborateness of the Japanese character set, the Japanese market seems effectively closed for U.S. or European software.

If MSX machines are exported, however, several Japanese software vendors already have conversion packages to translate MSX kanji (Japanese characters) into other languages. They would welcome the chance to export software in the

form of licenses or ROM packs.

Also oncoming in the Far East is a new generation of lap-size "tabletop" computers from the major Japanese manufacturers. The first examples of lap computers such as the HX-20 from Epson (known as Hattori-Seiko in Japan) were no big



Ricoh's entry into the home computer market includes a small integral monitor and optional calculator.

success. The nonstandard central processor and operating system, the size of the LCD screen and the printer width are limiting sales, especially those in other countries. In Japan, limited screen size and printer width are not so important; in Japanese, one can say more with fewer characters.

The Microsoft-inspired Tandy-NEC-Olivetti-Kyocera machines (the TRS-80 Model 100 and the NEC 8201 in the U.S.)



Sord's home computer comes with a unique joystick controller and cartridge slot.

were only the beginning of a flood of portables.

At Data Show '83 the portables were everywhere. Some models are fairly basic; others were more refined, such as Sharp's PC 5000, now with 3½-inch floppies. The new generation of portables, with 80-character by 16-line displays, 16-bit processors and integrated software, were not shown publicly, but Sord, among others, had one ready in a back room.



Sony introduced the Hit Bit, one of the first Japanese MSX home computers.

Luc Sala is editor of *MicroInfo*, a monthly microcomputer magazine in the Netherlands.

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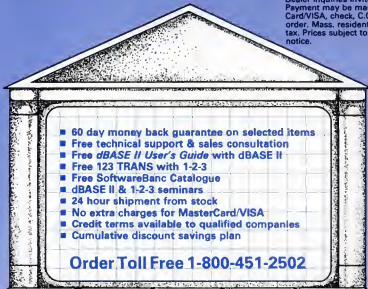
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# Microcom's Era 2 communications system

BY BARBARA WIERZBICKI  
Reporter

**M**icrocom, of Norwood, Massachusetts, has announced a new communications product for the Apple IIe, IBM Personal Computer and PC XT. The Era 2 communications system costs \$429 and includes a plug-in, 1200-baud-modem board that fits inside the computer, menu-driven communications software, users' manual and a telephone cord. The company is also

*'The new era of communications demands more than just a modem,' said James Dow.*

planning to have a version of Era 2 for the newly announced PCjr.

With Era 2, for example, you can dial GTE Telenet, access and log into Dow Jones, find a stock quote, save it to disk for review at a later date and disconnect. It can also access remote data bases and utilities.

Era 2 incorporates the Microcom Networking Protocol (MNP), which permits error-free transfer of text or data files between personal computers, minicomputers or mainframes. First made available to manufacturers for a one-time \$2500 licensing fee in July, the MNP was an instant success and might well be on its way to becoming a de facto standard in the industry. Major companies, including VisiCorp, Lotus Development Corporation, Apple Computer, Tandy Corporation, GTE Telenet, British Telecom and Dow Jones Information Services, are supporting it.

"The new era of communications demands more than just a modem," said Microcom president James Dow. "Era 2 now lets popular personal computers exchange files with each other and access a full range of communications functions. MNP allows this communications compati-

bility between dissimilar machines, and it now supports the Apple IIe and the IBM PC product line."

Era 2 lets you set communications parameters such as baud rate, flow control, character format, parity, tab setting, answer-back and screen background. The all-digital modem is Bell 212A- or 103-compatible and can accommodate transmissions up to 1200 baud. It supports auto-answer, originate-answer, and pulse- or tone-dialing in the asynchronous mode.

Automatic unattended transmission or data collection is supported by the IBM PC

## IBM unveils local-area network in Switzerland

BY PHIL HIRSCH  
Contributor

**I**BM displayed its much-anticipated local-area network at a recent international telecommunications conference in Geneva, Switzerland, but company officials refused to say when (or if) it would be offered commercially.

Although the token-passing ring network transmits digital voice signals, "it's not a private automated branch exchange," said an IBM technician who asked not to be identified. Much more work is needed before real-time voice conversations can be handled as well as the telephone network, he said, but he noted that the network accommodates stored voice applications.

Scientists at IBM's Zurich laboratory are now working on a 16-megabit-per-second version of the network, he added. The model shown at Telecom '83 has a nominal speed of 4 megabits per second, but the technician acknowledged that the actual throughput is "considerably less."

The IBM network consists of a series of star-shaped subnetworks, each controlled from a "wiring concentrator." A backbone ring connects the concentrators with each other and with a "bridge" through which one backbone can interface with others. The backbone actually con-

sists of two parallel, separate message paths.

The Apple IIe version requires a clock card.

Era 2 comes with a four-year warranty and a free subscription to Dow Jones. The IBM PC version is slated to be available in January and the Apple IIe version in February through dealers and national distributors.

"It's an excellent price," commented

Brant Corenson, president of Enlon Associates, a Cupertino, California, market-research firm specializing in communications and personal computers. "Whether it gains wide acceptance remains to be seen. Hayes still has the premier product on the market."

(Hayes Microcomputer Products, based in Norcross, Georgia, is the leading manufacturer of modems for personal computers. The Hayes 1200-baud modem with communications software retails for \$595).

The network displayed by IBM at Telecom '83 consisted of only a single ring — a wiring concentrator connected to several terminals located within its exhibit area. Among the interconnected devices were 3270 CRT terminals, a 3725 front-end processor, an 8775 display terminal and 8100 distributed processors.

A device gains access to the network by changing the status of a constantly circulating, 1-bit "token" from "free" to "busy." The token is in the header of a message frame; this frame is then filled with all or part of the message itself.

After being delivered to the receiving station, the message frame returns to the sending station, thus confirming delivery. It is then removed from the network.

Digital voice and other kinds of synchronous traffic are transmitted with the help of a Synchronous Bandwidth Manager (SBM), a special station that, upon request, reserves a series of message frames ahead of time. The bits comprising the synchronous message are then sent through the network in bursts at regular intervals. They are collected at the receiving point and then, when enough bits have been collected, delivered as a spoken message.

By keeping the delay between bursts short, relative to the speed at which the buffer is emptied, a voice message can be delivered in a way that sounds to the listener as if it is being spoken in real time.

*Phil Hirsch is a senior editor with Computerworld, a trade weekly based in Framingham, Massachusetts.*

# MICROSOFT DOES WINDOWS

BY JOHN MARKOFF

Senior Editor

**A** leading software company has opened a second front in the developing window wars.

Less than two weeks after VisiCorp started shipping its long-awaited Visi On integrated software package, archrival Microsoft has fired an answering volley by introducing a lower-cost window manager with new features that both users and applications-program developers will love.

On November 10, in New York, Microsoft announced Windows, a window manager and graphical-device interface designed to integrate applications software running on the IBM Personal Computer and IBM PC-compatible computers. Microsoft is billing Windows as an extension of Microsoft's MS-DOS operating system.

Window managers offer personal-computer users the ability to view several programs or documents on the screen simultaneously. Users can move, resize and sometimes stack windows in order to focus on one document while referring to others. Window managers generally convey the metaphor of a desktop environment — stacks of paper on the desktop with a filing cabinet and wastebasket close by.

Microsoft's announcement drew together many IBM PC-compatible hardware manufacturers, including Compaq, Hyperion, Texas Instruments, Hewlett-Packard, Eagle, Zenith, Burroughs and Digital Equipment Corporation. The product also received blessings from manufacturers who are planning to introduce IBM PC-compatible machines shortly, including Apple Computer, Radio Shack and Mindset.

One corporation is conspicuously absent from the list of supporting hardware manufacturers — IBM itself. Because Microsoft developed the operating system (MS-DOS) that IBM has blessed for its Personal Computer, whether IBM plans to support Windows is a touchy subject for Microsoft. Company officials had no comment on IBM's plans to adopt Windows, but said that it will be available on the IBM PC when the program is shipped. Microsoft says that it will ship Windows to dealers in April (although development on a product like Windows is difficult to

addition to the window manager, Windows will include Microsoft's Graphics Device Interface (GDI), which would make it easier for software developers to make their application draw a line or scroll on the screen.

"The window manager is actually a small part of this announcement," said Leo Nikora, Microsoft Windows group manager. "Windows is actually an attempt to widen the development environment for MS-DOS so that applications can be graphically oriented."

The true meaning of Windows, Nikora

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## *Window managers allow personal-computer users to view several programs or documents simultaneously*

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predict and may take longer), priced between \$100 and \$250.

Software publishers who've announced plans to offer application programs running under Windows include Lotus Development Corporation, Ashton-Tate, Software Publishing Corporation and Software Arts.

Additionally, Microsoft said that it was planning to modify its own applications, such as Multiplan and Microsoft Word, so that they would work under Windows. The announcement of support from other software publishers appears to give Microsoft a significant advantage in the race to provide integrated software for second-generation personal computers. In

said, was "complete device independence and a graphical interface for MS-DOS" that can permit the operating system to take full advantage of available peripherals such as high-resolution printers.

With Windows, Microsoft is claiming that software-application developers will be able to write programs without worrying about specific features of the hardware and that programs written to run under Windows will be portable to any personal computer that supports Windows. Microsoft is also making a strong commitment to bit-mapped graphics and the use of the mouse pointing device with the introduction of Windows.

Microsoft claims that Windows will

work on personal computers equipped with two floppy-disk drives and as little as 192K random access memory. Software development is such that it is difficult to predict exactly how a product will come out when it's finished. VisiCorp, for instance, claimed when it announced Visi On a year ago, that it would be able to run on two floppy-disk drives. Only recently did the company find that it couldn't make the product work without a hard-disk drive system. If Microsoft succeeds in keeping Windows a floppy-disk product, it will be able to run MS-DOS and "several significant applications," according to Nikora.

One simple program that will come with Windows is a "visual shell" intended to insulate users from some of the complexities of the operating system. A visual shell is a menu of options that allows you to select operating-system commands by pointing at them.

One piece missing from the puzzle so far is MS-DOS 3.0, the long-awaited, multitasking version of Microsoft's operating system that allows you to run several programs or tasks simultaneously. Microsoft has clearly designed Windows to take advantage of multitasking — all the partitions or windows in the program are active at the same time. Microsoft refused to comment on when the new version of MS-DOS would be released.

Although Microsoft went to some pain to emphasize that Windows is an "open system," it had to admit that third-party software must be "well behaved" in order to reside in an individual window on the screen.

According to Jerry Dunietz, Microsoft systems-software engineer, programs that circumvent MS-DOS, such as Lotus 1-2-3, will not run inside the window manager. Dunietz referred to these as "misbehaved" programs and admitted that a significant portion of MS-DOS software falls into this category and that such programs would use up the entire screen, instead of appearing in a window. Microsoft's own popular Flight Simulator program, which doesn't require MS-DOS at all, is one notable example of such a program.

In a demonstration for *InfoWorld* at Microsoft's offices in Bellevue, Washington, the company was not able to show any applications except for a simple demonstration painting program running under

the Windows package.

Microsoft's Windows constitutes a noticeable departure in appearance from other window managers previously introduced. The Xerox Star, Apple Lisa and window managers for the IBM PC, such as Visi On, DesQ, ConceptVP and InView, all permit overlapping windows (see related story page 35), with each displaying different programs or documents.

But Microsoft has chosen a "tiling"

functions automatically.

Bulmer claimed that the tiled approach to windowing is a more intuitive and predictable user interface. He says that a user can change window size or position with a single mouse click.

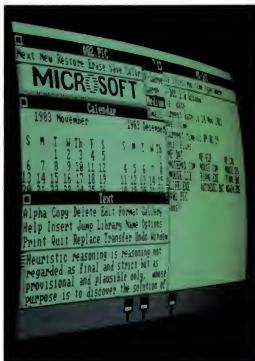
Microsoft's announcement of Windows could put the company in the driver's seat in the integrated software battle between major microcomputer software vendors.

Bulmer expects Microsoft Windows to easily compete with Visi On in the IBM PC and PC-compatible market. "It's a radically different approach than Visi On. VisiCorp has created a special purpose tool for its applications. We consider Windows to be an extension of the operating system. Our approach is that there is only going to be one winner," he said.

Software developers must use a Digital Equipment Corporation VAX minicomputer, which costs more than \$20,000, in order to write software for Visi On. In contrast, developing software to run with Windows only requires the Windows program and an IBM PC. As a result, Bulmer feels that Windows will end up having a wider base of applications software developed for it. "If 90% of the programmers have to develop on something different than the target machine, you don't have an open system," Bulmer said.

One software publisher that has decided to endorse Windows is doing so precisely because of Microsoft's approach of extending the operating system. Fred Gibbons, president of Software Publishers in Mountain View, California, said, "We had to make a decision between VisiCorp and Microsoft. We decided to go with Microsoft because we think windows should be part of the operating system. Today, Microsoft is the company in the operating system business."

Other observers have a wait-and-see attitude. Esther Dyson, editor of *RELEASE 1.0*, an industry newsletter, noted that the battle isn't over yet. "Simply announcing support for a particular window manager is not the same as actually using one," she said. Dyson said that although Windows has been announced, it is not yet ready for the market and does not yet have applications software. Visi On, after a year of development, is ready with applications software, she said.



Microsoft's Windows running a painting program.

approach to windowing. In a tiling approach, the screen display is divided into columns, and the columns are broken into windows. Windows has a built-in "automatic window layout" feature that resizes all the windows when the size of any one window is altered, so that the windows never overlap. When one window is placed on top of another window, the covered window is instantly transformed into a pictorial representation or icon, and displayed at the base of the screen.

"It's the metaphor of the neat desktop," said Steve Bulmer, Microsoft vice-president for marketing. He said that after an extended internal debate about the philosophy of designing window managers, Microsoft had settled on a user interface that will handle many window-sizing

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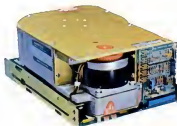
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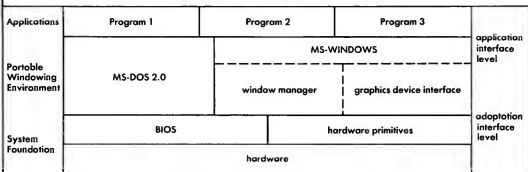
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## MS-Windows System Architecture



## Openness and Integration: What do they really mean?

Just as the personal-computer industry hasn't reached a consensus yet on which kind of mice or windows it favors, it also hasn't made up its mind on the questions of what *integration* and *open system* mean.

In the past month, *InfoWorld* has previewed four recently announced window managers for the IBM PC: Visi On, DesQ, Windows and InView. A fifth company, New England-based Scientia, which has developed a window manager called ConceptVP, visited *InfoWorld's* offices last week.

After looking closely at all five systems, we noted that all five manufacturers insisted that their systems are "integrated" and "open". It's clear, however, that not everyone means the same thing.

Window managers are one approach in the most recent effort by software developers to expand the function and power of personal computers by integrating different and often conflicting application programs. In fact, integration as a whole is a hotly debated concept. Some developers, such as Lotus Development Corporation or Context Management Systems, feel that the best way to integrate applications is to build program integration — the ability to transfer data and use common commands — into the structure of an application itself, which is the so-called all-in-one approach.

Other developers, such as Apple Computer or VisiCorp, feel that separate application programs (on different diskettes or different areas of a hard disk) should be given a "universal environment" (called a *window manager*) through which data can be passed and

manipulated. Window managers allow personal-computer users to look at several sets of data and programs simultaneously and transfer or translate data. "Windows were an obvious solution to passing data back and forth," says Therese Myers, president and founder of Quarterdeck Software, designers of DesQ.

But what data can be transferred and how it can be moved varies from one window manager to another. From what we saw, the most impressive integration claims were made by VisiCorp who told us,

company has announced a "data interchange protocol." Windows, its window-manager product, will provide a set of predefined (but extendable) data types that will facilitate data interchange. Initially, these types will include "uninterpreted binary," "ASCII text" and "SYLK." Microsoft's data-exchange protocol for Multiplan. Software developers will be able to add customized interchange protocols for their own programs.

Microsoft uses two different techniques for communicating between windows. These techniques supply windows with "intelligence" that allows different windows to query each other to see if something has happened in another window that they should be aware of. Ultimately, this should mean that Microsoft Windows is able to attain the same level of "tight integration" demon-

***Integration is a hotly debated concept among software developers, but it's clear that the term 'integration' does not mean the same thing to everyone.***

for example, that when Query, its relational data-base manager, is available, the user will be able to select graph, spreadsheet or textual data with a mouse and then move that data simply by pointing to a field in the data base.

VisiCorp claims that data interchange between Visi On applications will be virtually universal. The company is now able to demonstrate data transfer between spreadsheet and graphing programs.

Microsoft, on the other hand, has no application programs ready to demonstrate its program integration, but the

strated by Visi On.

Other window managers, such as DesQ, ConceptVP and InView, achieve "loose," or less intelligent, integration by translating data between incompatible programs. DesQ, for example, can either transfer data directly by copying it from RAM or in a more complex fashion by using a "learn facility" which interprets data types from each program.

Openness also means different things to different manufacturers.

Visi On is perhaps least open, requiring that software developers engineer pro-

grams for Visi On on a VAX minicomputer. Microsoft says that MS-DOS compatible programs will run under Windows, but admits that programs must be redesigned to take advantage of Windows' special functions.

Quarterdeck says that a majority of the

**Microsoft admits  
programs must  
be redesigned to  
take advantage of  
Window's abilities.**

programs written for MS-DOS will run with DesQ without modification. In addition, the company will offer development tools for users that will allow the creation of pop-up menus for individual program functions. However, Quarterdeck is not supplying custom applications for DesQ and therefore can only offer "loose integration."

Like Quarterdeck, Scientia and InView are striving to make their environments as accessible as possible to existing applications, as well as attractive to software developers writing new programs. —JM

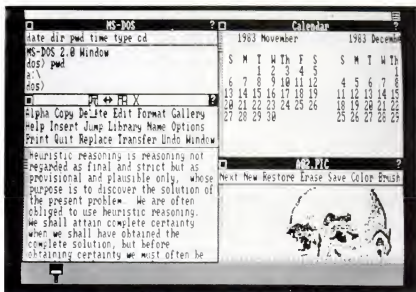
## COMPANIES SUPPORTING MICROSOFT'S WINDOWS

### HARDWARE

ALTOS  
APPLE/RANA  
BURROUGHS  
COLOMBIA DATA  
COMPAQ  
CONVERGENT  
DATA GENERAL  
DIGITAL  
EAGLE  
HEWLETT-PACKARD  
HONEYWELL  
HYPERION  
ITT  
MINDSET  
NBI  
NCR  
POLO  
RADIO SHACK  
SEEUQA  
TEXAS INSTRUMENTS  
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ZENITH

### SOFTWARE

LOTUS DEVELOPMENT  
SOFTWARE PUBLISHING  
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ASHTON-TATE



The portion of a head in the lower right window on the screen was developed using a "painting" application.

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# Apple announces discounts to schools, student competition

BY BARBARA WIERZBICKI  
Reporter

**A**pple Computer recently announced a pricing program that will enable schools to purchase Apple products at a 30% discount. In addition, for each five of the same products purchased, Apple will contribute a sixth identical product free.

Known as Investment in Education, the program began November 1 and will continue through February 28, 1984. It is available to all public and nonprofit private schools, from elementary through college levels.

The program covers most Apple hardware and software products except the Lisa personal computer and its software programs. Systems such as the Apple IIe starter system and special promotional packages are available at the discounted price but are not included in the "six for five" offer. Participating Apple dealers will provide installation and orientation at no additional cost to the schools.

Apple has also launched a nationwide program to assist elementary and secondary schools in forming local student computer clubs. Apple, based in Cupertino, California, is fueling this program with a national student competition in which both computer clubs and individual students can compete for over \$100,000 in prizes.

"Computer clubs are an effective way of educating students in computer technology outside of the classroom, so we want to make it easy for every interested elementary and secondary school to form one," said Chris Bowman, manager of home and education marketing for Apple. "The competition will give students incentives to push for the creation of clubs at their schools," he added.

Apple is sending computer-club kits—which are designed for schools with or without computer equipment—to the first 10,000 schools that request them. The request must be on school stationery, signed by the principal and include the name of an adult sponsor—either a teacher, administrator or parent—willing to advise a club. Each club must have a minimum of 12 students.

Each kit contains a manual that provides organizational guidelines and suggestions for club activities, such as

launching a student-run computer-tutoring program. The kit also includes brochures that describe how to use a computer, what computer clubs do and where to learn more about computers. In addition, Apple will publish and distribute to subscribing student computer clubs a free bimonthly newsletter that will report on national club activities.

Clubs and individual elementary- and secondary-school students participating in the competition are asked to submit projects showing how they use microcomputers to serve their community. All entries are due March 1, 1984. Competition finalists will be flown to Washington, D.C., in May for a five-day stay, during which the winners and runners-up will be named.

Those interested in receiving more information about the competition can call (617) 452-9979. If you are interested in receiving a computer-club kit, write to Apple Computer Clubs, Box 948, Lowell, MA 01853.



Apple's Investment in Education program will discount Apple computers for schools.



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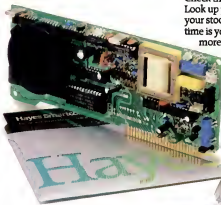
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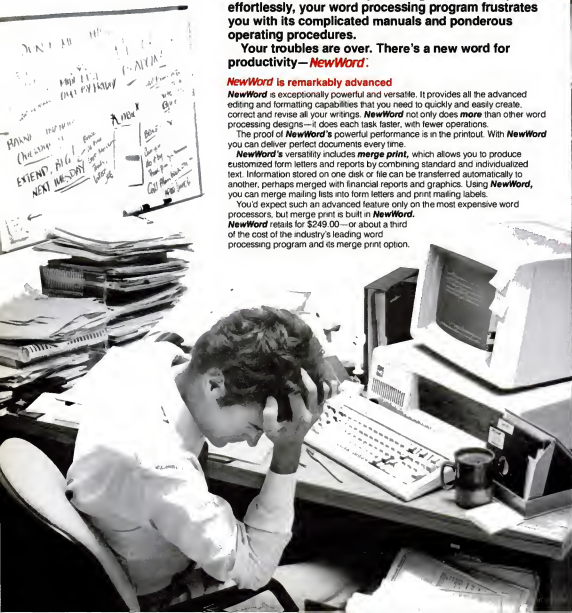
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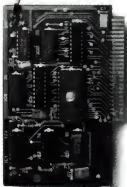
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# News Briefs

**Million-dollar computer poker challenge:** The most colorful player at the 1984 World Series of Poker, the world's largest and most famous gambling event (held annually at Binion's Horseshoe Club in Las Vegas, Nevada), will not be one of the gentlemen (and ladies) who buys into each event for tens of thousands of dollars and plays the other competitors in side games for hundreds of thousands. Competing for \$1 million in cash in a special "heads up" event will be an Apple computer, programmed by one of the world's most renowned poker authorities.

Mike Caro — known among gamblers as "The Mad Genius of Poker," author of several books on poker strategy and creator of computerized gambling simulations — believes that a good poker-playing computer program can beat the best human players. He is so convinced, in fact, that the program he is developing in Pascal for his Apple II will be unbeatable that he has challenged the world's best poker players to play his computer for any amount of money they care to name.

The game will be Texas hold-'em, the same used to determine the World Series of Poker champion each year at the Horseshoe.

Here's what makes the computer such a good player, according to Caro: "(1) It bases its decisions on thousands of hours of my computer simulations. (2) It adjusts correctly to the play of an opponent. (3) It doesn't become emotionally involved. (4) It uses psychology, making appropriate comments that ridicule, goad or even praise the opponent — not randomly, but by design."

Twice-world-champion Doyle Brunson and current champion Tom McEvoy have agreed to sit across the table from the Apple in one-on-one freeze-out play, with a \$100,000 buy-in, winner-take-all.

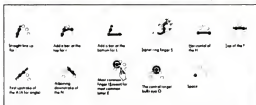
Bob Stupak, who bills himself as "The World's Greatest Poker Player," has also accepted the challenge.

In addition to \$1 million, Stupak will surrender his Rolls Royce if the computer wins. Since Caro doesn't own a Rolls Royce with which to gamble, he's "providing a sledge hammer. If Stupak wins, he will be allowed to smash

my computer in front of the world."

**One-handed word-processing:** Microwriter, a hand-held word processor with 8K of built-in memory, has been introduced in

pressing a combination of the five keys. Some combinations approximate the shape of the letter (see illustrations). A single keystroke produces letters such as E, S, O and the space bar. The suggested retail price is \$499.



Above: Microwriter, a hand-held word processor, features a 16-character liquid-crystal display. Below: Finger positions for creating letters of the alphabet using Microwriter and one hand

the U.S. The device, previously available only in England and Europe, is a one-handed keyboard with six buttons (five fingers plus a control button).

According to the manufacturer, Microwriter, in New York City, the device can hold up to five double-spaced pages of text. You can edit and format the text and then hook Microwriter to a micro-computer or directly to a printer, via an RS-232 serial port, and print the file out.

You can form all letters by

**Selling the Sizzle:** Robert Lively, publisher of *The Sizzle Sheet*, a guide to computer marketing and advertising, has launched a series of regional trade shows aimed at marketers who sell computers and high-tech equipment. Lively, a quiet and thoughtful man who has been involved in the information industry for more than 20 years, wants to "build an alternative to the big computer trade shows," at which large companies can spend as much as \$50,000 to \$100,000 a show. Sizzle West, held recently in

San Jose, California, was sparsely attended, but it received rave reviews on some of its seminars. One session coached advertisers on how to "break through the continuous buzz of ad messages dulling the minds" of computer buyers.

Another talk, presented by industrial psychologist Allen Konopacki, told marketers that much of what they do at computer trade shows is ineffective. "I found out I was doing things all wrong at trade shows," said Julie Bou, communication director of Disco Tech in Santa Rosa, California, after listening to Konopacki pan fancy brochures.

**Dot maker goes bankrupt:** Computer Devices has filed for bankruptcy under Chapter 11 of the U.S. Bankruptcy Code just six months after the company started selling its Dot portable computer.

Computer Devices began selling the Dot (priced between \$3000 and \$4000, depending on the configuration), a 16-bit portable computer aimed at the business market, in April. The system, which ran MS-DOS software, featured 3½-inch disk drives that were incompatible with disks sold by other computer manufacturers, and sales never reached company-projected levels. The Dot also had room for an optional integral thermal printer.


It came as no surprise to industry observers that Computer Devices is the most recent victim of the shakeout in the personal-computer market. The company has been reporting losses for the past several months, and there has been a series of layoffs at the firm's facility in Burlington, Massachusetts.

Computer Devices has been looking for a buyer since September, but it hasn't found one, according to the company's general counsel, Mark Manski.

Manski said Computer Devices intends to file a business plan with the court soon. "It isn't a situation where we're bolting the doors," he said. "We hope we can continue our efforts in the portable-computer marketplace."

Compiled by Tom Shea, with help from Michael Wiesenberg

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# Backyard astronomer stargazes with micros

BY MICHAEL SWAINE

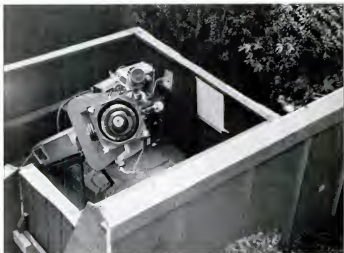
Senior Editor

**F**our years ago, David Skillman began building a microcomputer-controlled observatory in his backyard in Greenbelt, Maryland. Today, as a result of his work in amateur astronomy, he is helping NASA put a telescope in space.

*InfoWorld* learned about Skillman's observatory from reader Bill Herbert, who says of his friend's amateur observatory, "Not only is his implementation fascinating, but he has the capability of making serious contributions to science."

Skillman has indeed made serious contributions, although he is modest about them. "Discoveries? You have to be careful what you call 'discoveries,'" he says. "I've published some papers in scientific journals, fairly low-key things. I have some more papers [based on research done with the backyard observatory] coming out soon."

Although Skillman is cautious about describing his results as "discoveries," he makes it clear that his amateur observatory is involved in real science, producing "hard astronomical data of use to other astronomers." He thinks personal computers can pave the way for bright people "who are willing to do a little programming" to conduct research that can enhance our understanding of science.



*Skillman's microcomputer-controlled backyard observatory*

using large computers," he recalls. He saw little connection, then, between his work and his backyard observatory. The purchase of a Kim microcomputer (a simple hobbyist machine no longer made) gave him the chance to see firsthand what the computer hardware did. Although the limitations of the Kim precluded any

operation. Typically, a "smart" satellite contains a computer that controls its orientation in space, its communications and its scientific instruments. On the ground, two other computer systems are operating, one to direct the computer in the satellite and one to analyze data from the satellite. For his observatory, Skillman bought an Apple computer ("it was assembly-language compatible with the Kim") to act like the two ground-control computers. While it handled control and analysis, the Kim acted like the smart system found on board satellites.

"The idea was to let the Apple run the telescope at night and use it to analyze data by day," Skillman says. He mounted the Kim on the telescope itself, where it played the role of hand and eye to the Apple's portrayal of a brain, translating the orders of the Apple's programs into signals necessary to direct the telescope's motors. With the Apple in his basement connected by buried wires to the Kim, Skillman began collecting data. "The software was hand-coded assembly language," he says. "The Kim had no assembler."

Skillman says microcomputers open the door to scientific accomplishments by amateur scientists. "It gives them the

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*His amateur observatory is involved in real science, producing hard data of use to other scientists and adding to our understanding of science.*

---

Skillman's astronomical interest is in variable stars — an area in which few people are collecting data, he says, and one well suited to computer aids because it requires a kind of vigilance difficult for people.

Already an amateur astronomer, Skillman got involved with microcomputers several years ago through a friend. "I was working at NASA on satellite projects,

serious data handling — there was no way to add a disk drive — Skillman knew that "it was ideal to control a telescope," and he began to assemble his microcomputer-controlled observatory.

The microcomputers Skillman used were essential to his project. They performed analogous functions to those handled by computer systems he was familiar with in satellite guidance and



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## USING MICROS



Shillman studies variable stars with his Apple and his backyard observatory.

ability to do mathematical analysis, and that's fundamental. It's part of what science is." He points to one advantage the hobbyist with a microcomputer might have over the professional scientist in the lab. Although doing computations on a personal computer is usually slower than on a mainframe machine, the amateur scientist has the option of dedicating his

stations. In fact, considering that over a half-million personal computers are currently in use in instrument-related applications such as research labs, personal computers are also making a difference in the work of professional scientists. Professionals are using micros out in the field, too. For example, researchers have been using TRS-80s to monitor Mount St.

**Personal computers offer people the chance to do abstract theoretical science. Quite a few people have done reasonable scientific investigations.**

computer to a task and letting it compute all night.

Although he thinks "most people don't have the engineering skill" to use computers to control data-gathering instruments like telescopes, Skillman says that microcomputers offer many people the potential to contribute to science at a more theoretical level. "Personal computers offer people the chance to do abstract theoretical science. Quite a few ordinary people have done reasonable scientific investigations using personal computers."

He pauses and adds, judiciously, "slowly." Skillman is right. Amateurs, using personal computers, are doing reasonable scientific investigations — from tracking satellites with hand-held computers to running home observatories and weather

Helens since its first major eruption about three years ago.

Furthermore, the personal computer may be opening new paths from amateur scientists to professionals in science. Skillman's case demonstrates how amateur science can lead to professional science — to getting paid for the work.

Although he had worked for the NASA Goddard Space Flight Center before on satellite projects, Skillman credits his work on his backyard observatory and the results it generated with leading him directly to a job at the Stuart Observatory in Tucson. It also led him to write software for the telescope at Kitt Peak Observatory, and, ultimately, to his present job with NASA, working on the project to build the first telescope in outer space. ●

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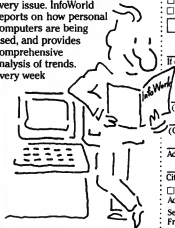
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# Wizard of Menlo Park

BY MICHAEL SWAINE

Senior Editor

**T**he original Wizard of Menlo Park (New Jersey) was Thomas Alva Edison, who knew a lot about light bulbs. *InfoWorld's* modern Wizard of Menlo Park (California) knows about using microcomputers. Send your questions to The Wiz, 1060 Marsh Road, Suited C-200, Menlo Park, CA 94025.

Wiz,

I am a writer and I have a contract to deliver a manuscript either (a) in IBM Electric type with ball printing and Publishing 173 or (b) to a Wang VS 100 computer. I work with an Osborne computer and WordStar.

So far I have not found anyone who can make my disks read out on the Wang; alternatively, I am looking for someone who has an Osborne connected to an IBM Electric.

I would hate to have to retype a computer-edited manuscript! You can understand that.

Florence Temco  
Lenox, MA

Florence,

First, I recommend that you find out why the publisher requires that particular typeface. If the publisher is using optical-character-recognition equipment to read the manuscript directly into its computer memory (perhaps the best reason for requiring a particular typeface), ask for more information about the typeface(s) the equipment supports — OCR B is common. Standard printers, such as the Diablo 630 and NEC Spinwriter, can generate OCR B type from your Osborne.

If you own or can borrow a Selectric typewriter, you could buy an interface. The easiest route to this solution probably would be to purchase a mechanical device that sits on your keyboard and taps the keys under computer control. Rochester Data in Rochester, New York, makes one. This process, though, is slow and an expensive solution to the problem of data transfer. The cheapest solution may be to

*Thanks to Thom Hogan, who was Osborne Computer Company's first Wizard of Osborne, for his help with this week's column.*

find someone with a Wang computer and a modem and transmit the manuscript by phone. Perhaps a Wang owner reading this will get in touch with you.

Wiz,

I am writing regarding a problem that has been going on for about a year or so. I have a specialized database system running on a TRS-80 Model I. Up to several times a day the ID pack on some disk sector will be damaged, so the sector is essentially unreadable except by direct track-reading programs like Trakcess. I have taken the following steps in an attempt to stop this problem from occurring:

1. bought and used a disk-head cleaning kit;
2. changed disks (program and data);
3. bought and installed gold-edge connectors for circuit-boards;
4. installed a data separator;
5. bought a new operating system (LDOS for NEWDOS);
6. changed the CPU/EI cable;
7. installed a spike protector;
8. kept wristwatches away from the computer and disks;
9. controlled for bookkeepers' adding machines on other side of wall;
10. controlled power surges caused by the building's air conditioning being turned on and off.

I am presently trying something else (removing some code that keeps the disk-drive motor running), but I'm not holding my breath.

Robert J. Konigsberg  
Sunnyvale, CA

Robert,

You've gone a long way in tracking down the problem. I can't troubleshoot hardware by mail, but for others who've had disk problems and may not have gone as far as you have in diagnosing them, I can offer some general guidelines for tracking down the source of the problem.

If the errors are intermittent, attempt to eliminate possible electrical and environmental causes: heat, static electricity, power surges, marginal-quality diskettes, loose connectors, faulty cables. You've done most of that.

If the errors are hard errors — that is, if you can't recover from them — and if

none of the above procedures help, you should look at the disk drives. The usual things to check are disk alignment, azimuth, head clearance and whether the signal strength is within tolerance. It sounds like your particular problem lies in the drives.

I recommend you have a professional look at the drives. You may be able to align or adjust them to work properly for your system, but in doing so, you might put them out of sync with the rest of the world — so that disks written on your system will be unreadable by any other system.

Wiz,

What does  $\mu$  mean in publications about computers?

Cindy Hill

Cindy,

The Greek letter  $\mu$  stands for, among other things, the prefix *micro* as in *micrometer*, *microvolts* and *microcomputer*. Computer jargon often shortens *microcomputer* to *micro* and sometimes further to  $\mu$ .

Wiz,

Can you recommend some good literature on the Osborne 1 computer?

Julia A. Mussen  
Alexandria, VA

Julia,

If you want general information on using the machine, there are books about the Osborne now available from these publishers: Reston, Brady and Harcourt Brace Jovanovich.

For more detailed information, you should consider subscribing to *FOG-HORN*, the newsletter of FOG, the First Osborne Group, located in Palo Alto, California. You may also want to dig up back issues of Osborne's unfortunately defunct magazine, *The Portable Companion*.

If you want to know more about using the software that comes with the Osborne, you should buy books on the individual packages. There are good books on SuperCalc, WordStar and CP/M, and many books on BASIC programming. There's even a book from Brady Publishing (I haven't looked at it yet) specifically about word processing on the Osborne. ●

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# Rosenthal's ABCs

BY STEVE ROSENTHAL  
Contributing Editor

In this week's installment of Steve Rosenthal's glossary of microcomputer terms, you may find cross-references to entries that have appeared in past issues or that will appear in future issues. We hope you will find it useful to collect the complete glossary.—Editors

**datagram** — a method of sending data through communications networks. In this method, the data is broken up into packets, and each packet is routed individually from sender to receiver. Then, at the receiving system, the packets are assembled in order and the original message reconstructed.

The contrast is usually made between *actual circuits*, which keep a direct connection between sender and receiver for the conversation; *virtual circuits*, which route all the packets in a message by the same route; and the *datagram* method, where the packet routing can vary between individual packets. Although the datagram method requires more advanced software and error-checking methods, it does allow more efficient use of networks.

**data independence** — the formatting of data so that it can be used with a variety of different programs. The term is often used when discussing data bases.

**data link** — (1) in general: a connection between two computers or computerized systems.

(2) specifically: the combination of software and hardware in a data communications system one step above the physical connection. It represents the transfer of information, rather than mere electronic signals. This means the receiving system must be able to properly interpret the signals sent by the transmitter.

**data-link escape** — a control character in many computer character sets that tells the data communications link to interpret the characters following as a group with a special significance, different than their normal meaning. It is used with data communications systems that inspect the data and act on certain control characters.

See *DLE* and *escape sequence*.

**data manipulation language** — a computer language designed specifically for storing, retrieving and arranging data. Most are written for use as part of a *database* system.

Data manipulation languages can be *procedural* (where the user tells the system the desired steps to perform a task) or *nonprocedural* (where the user describes a task and the system translates that into the necessary steps). They normally allow for sorting the data, selecting subsets or ranges and adding, counting and checking for various patterns and sequences.

**data path** — (1) the signal lines over which data travels in a microprocessor or other complex integrated circuit (IC). Data paths are normally characterized by their *width*, meaning how many bits of data can travel in parallel down the path at a time. A wider data path allows faster processing, but takes more space on the IC and thus drives up the cost.

On most microprocessors, the internal data path is the same width as the arithmetic registers (the circuits that do addition, subtraction and similar operations). This allows registers to be loaded or processed in a single transfer cycle.

Because of the interaction between the binary counting system and circuit design, standard data paths are now almost always 4,8,16,32 or 64 bits wide. Many chips are now built with a wide internal data path and a smaller width for transfers to the outside world, however.

(2) the route taken by data through a computerized system.

**data processing** — (1) specifically: the term refers to the processing of information by computerized systems, including the traditional fields of accounting and record keeping and, sometimes, word processing.

(2) generally: the entire collection of steps used to collect, digest, store and retrieve information. Used in this sense, the procedure is often called *information processing* instead of *data processing*.

**data reduction** — (1) the culling of selected information from raw input data, either for storage or further processing.

(2) the extraction of information from raw data by the application of arithmetic

and statistical transformations, or by other mathematical methods.

(3) the transformation of data to a more efficient coding method, in order to reduce storage needs or to speed processing.

(4) in information storage: indexing and abstracting information from the original text material.

**data segment** — (1) as applied to computer systems or software that maintains different pointers to data and programs: the area of memory used for data. You can place data in separate segments from instructions.

(2) specifically on the Intel 8086 family of microprocessors: the term refers both to the region of memory used for data and to the register that contains the pointer to that region.

**data separator** — (1) on a disk drive, tape unit or other system that stores data and timing information in an encoded form: the circuit that extracts the data from the combined data and clock signal.

(2) in the EBCDIC coding method used on large IBM computers: a control character that is used to separate items in a list of data. It has a hexadecimal value of 20H (32 decimal) and shows up on most terminals and printers as a space.

Because of the timing variations inevitably present in an electromechanical system, designing a data separator that will reliably recover the correct signal at high speeds is difficult.

**data set** — (1) a file or group of files that can be used as input or output for a program. As defined by IBM on large computers, data sets are characterized primarily by the way they are organized: *sequential*, *partitioned*, *indexed sequential*, *direct* and *telecommunications*. For each arrangement, one or more access methods can locate data within the file.

(2) another term for a *modem* (the device that changes computer data back and forth into the form that can be sent over the standard telephone network). ●

*In order for InfoWorld to finish presenting the complete alphabet before the terms become obsolete, we will run only the more common terms related to microcomputing. The complete Rosenthal's Glossary, in book form, will be published by Prentice-Hall next year.*

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# The Insight Engine: A slinky sequence



**BY MICHAEL SWAINE**  
Senior Editor

**T**his is a puzzle column, dedicated to the use of that ancient data-processing instrument, the human mind. Although the odd bit of computer lore — pollen of the Silicon Valley atmosphere in which this column grows — will inevitably filter in, the puzzles here are, unless otherwise labeled, not for your computer's consumption but for the appetite of your mind. For the insight engine.

Mr. Usasi, puzzle detective, was sitting in the office of Dr. Duncan Liu, director of the Institute for Recherche Research, listening to Dr. Liu explain his problem. Dr. Liu adjusted his glasses and frowned. "We installed a new printer last week," Dr. Liu said. "Since then, one of the computers has been malfunctioning. The computer is a dedicated machine, running a program that generates sequences of numbers and prints the interesting ones. It's testing relatively simple rules for sequence generation; arithmetic sequences like 2,4,6; sequences of powers of primes; that sort of thing."

Usasi nodded, encouragingly. "Up to now, we have been able to understand the rule after studying the sequence for a short time, but this past week we haven't been able to make sense of a single sequence."

"Our engineers insist the computer is performing properly. They claim not to understand printers, but the printer is under warranty, so we called the repairman, who said the printer is working right. Since the computer's operating system is a modified artificial-intelligence system for software diagnosis, we asked it if it was all right; it gave itself a clean bill of health."

"Curious. If these diagnoses are all correct, a conclusion seems inescapable."

"I agree, Usasi. The sequences must make sense. But why can't we see the sense? That's why we called you, a puzzle detective."

Usasi asked to see one of the suspect sequences, and Liu took him to a small room where a printer was hard at work. "We keep it in here and usually just come in when it's through printing," Liu said. "It's awfully loud. Here's a sequence now," he added, tearing off a printout. Usasi studied the 18 numbers for a minute, and then smiled. He knew how the sequence was formed — that is, the rule by which each number after the first was generated from the one before it. And he thought he could solve all the problem sequences the computer had produced in the past week.

The solution will be printed here next week. Although it is immaterial to the solution of this puzzle, the sequence has both a mathematical and a historical significance, and I'll print the name of the first person who can explain either.



Dr. Duncan Liu, director of the Institute for Recherche Research

```
107928278317
781160158711
127773844057
729626696731
147619409797
766291245751
167464975537
704857783771
187310541277
741423332791
207156107017
778988870712
227001672757
726554429632
246847238497
763120077652
266692804237
701785516672
```

What rule generated this sequence?

*Solution to last week's puzzle:*

Last week's puzzle involved partial information about the correctness of testimonies of three witnesses.

The witnesses described the color of clothing worn by each of four suspects: Anson McDonald, Lyle Monroe, Caleb Saunders and John Riverside (I'll just use their initials).

If a witness correctly assigned a color to a suspect, the witness was assigned one point in the eccentric coding system used by the policeman; attributing the right color to the wrong suspect earned a half point.

The witnesses assigned colors and earned points as follows: Witness 1: 2 points; assigned AM brown, LM black, JR red and CS black. Witness 2: 2½ points; assigned AM mauve, LM brown, JR red and CS black. Witness 3: 1½ points; assigned AM mauve, LM brown, JR black and CS red.

The only assignment of these four colors consistent with these results is: AM red, LM mauve, JR red and CS black.

The answer to the incidental question is that Anson McDonald, Lyle Monroe, Caleb Saunders and John Riverside are all pseudonyms of science-fiction writer Robert Heinlein.



# Attention, Kaypro users.

There's a new magazine for you, and if you own a Kaypro computer it won't cost you a penny.

**Pro/Files**, the Magazine for Kaypro Users, features a wide range of articles designed to help you make better use of your new Kaypro computer. We answer questions, provide assistance, help you explore new avenues . . . whether you're just a beginner or a real Kaypro wizard. And we attempt to do so with clear writing, professional design, and, above all, a sense of humor about the personal computer experience.

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City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Kaypro model: \_\_\_\_\_ Date purchased: \_\_\_\_\_

Serial number: \_\_\_\_\_  
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# Events: November 21-27

## MON 21

**Palm Springs, CA:** Enterprise Information Systems (EIS) will present a two-day conference featuring an up-to-date critical appraisal of the important software products and technological trends directly affecting today's users and suppliers of computers. According to Robert Fertig, the forum's sponsor and president of EIS, "Several industry misconceptions concerning the personal computer/microcomputer operating system trends will be shattered at the meeting, such as: the IBM/Microsoft mystique; the pending death of Digital Research's CP/M; the inadequacy of AT&T UNIX in Fortune 1000 commercial and transaction processing environments." Various speakers are scheduled and new products will be announced. Contact: Enterprise Information Systems, Inc., P.O. Box 1154, Greenwich, CT 06836. Location: Americana Canyon Hotel.

**Minneapolis, MN:** Personal Computer Local Networks is a two-day seminar focusing on personal computers and their relationships to distributed systems and local networks. The seminar will be offered by computer architecture specialists, the Architecture Technology Corporation. Issues such as the impact of technological advances and IBM's role in personal computer local networks will be explored as well. Contact: Architecture Technology Corporation, P.O. Box 24344, Minneapolis, MN 55424; (612) 935-2035. Location: I'Hotel Sofitel. Admission: \$595 advance registration, \$795 on-site (space available basis).

**Wellesley, MA:** A demonstration of a stock-market/commodity package will be given by Investor's Micro Software at The Boston Computer Society's Investment Group. Contact: Jim Heiman, (617) 462-9191. Location: Software Arts, 27 Mica Lane (Route 16 near Grossman's). Time: 7:00 P.M.

**West Lafayette, IN:** The On-Farm Computer Use Conference & Trade Show will bring together members of the agricultural industry for an exchange of ideas on computer usage. This two-day event will cover current and potential agricultural computer applications and uses as well as other on-farm computer possibilities.

A trade show with representatives from commercial and institutional suppliers of small businesses and agricultural computer hardware, software and services will be available to conference participants. Contact: Steve Resch, 116 Stewart Center, Purdue University, West Lafayette, IN 47907; (317) 494-2755. Location: Stewart Center (adjacent to the Purdue Memorial Union at the corner of Grant and State S.R. 26). Time: 8:30 A.M.-9:00 P.M. Admission: \$60.

**Reading, MA:** The Medical/Dental Computer Users' Group of The Boston Computer Society, which is composed of dentists, physicians and other health providers, investigates the role of the computer in the medical office. At this meeting, there will be a demonstration of the MedRx System for medical records, based on a simplified version of Costar, designed for small- to medium-size practices. Contact: Donald S. Sherman, DMD, (617) 643-7788. Location: Addison-Wesley firm building, Route 128.

**San Francisco, CA:** Examples of dBASE II applications will be demonstrated at the San Francisco PC Users' Group by Jeff Cassell of Slavin & Associates. The purpose of this group is to facilitate communication between users of the IBM PC, PCXT and other compatible microcomputers. Contact: Rick Alber, (415) 864-5141. Location: Fort Mason Center. Time: 8:00 P.M.

## TUES 22

**Concord, CA:** At the TRS-80

**Computer Society of Diablo Valley,** there will be a presentation on home and small-business accounting packages. Contact: Betty McBride, (415) 939-5285, 932-8856. Location: Contra Costa Water District, 1331 Concord Avenue. Time: 7:30 P.M.



## THUR 24



## SAT 26

**Manhattan Beach, CA:** A swap meet of electronic items including computers, disks, keyboards and radios is held the last Saturday of every month by the TRW Amateur Radio Club. Contact: Gary Komatsu, (213) 316-9230. Location: TRW parking lot at the corner of Aviation and Compton. Time: 8:00 A.M.-11:00 A.M. Admission: Free to all buyers and sellers.

**El Toro, CA:** At the Orange Apple users' group, an in-depth presentation on WestStar will be given to members. Contact: Steve Billard, 25381-G Albin Parkway,

Suite 359, Laguna Boulevard, Laguna Hills, CA 92653; (714) 768-2079. Location: Mercury Savings & Loan on Lake Forest Drive. Time: 6:00 A.M.-12:00 noon.

### FUTURE GROUPS:

The following is a list of people interested in starting various users' groups.

**Knorrville, TN:** dBASE II — Contact: Tom Sudman, chairman of Sudman & Associates, 9041 Executive Park Drive, Suite 304, P.O. Box 90385; (615) 691-6955 office.



**Irvine, CA:** IBM PC (and Clones) Users' Group — Contact: Ken Cohn (714) 770-8843. Location: Saddleback College North. Time: 7:00 P.M.-10:00 P.M.

**Boston area, MA:** Otrona Attache — Contact: Avram Tetwesky, (617) 437-1487 (6:00 P.M.-9:30 P.M.); HP — Contact: Simon Fowler, (617) 263-5711; Dvorak-style keyboard computers — Contact: Virginia Russell, (802) 247-6020 or the Boston Computer Society, (617) 367-1784; Artificial Intelligence — Contact: Bob Volk, (617) 821-1784.

*InfoWorld wants to keep you informed about the latest users' groups and their agendas, speakers of note and other computer-related events. If you have any items to contribute, please write to the Events Editor, InfoWorld, 1060 Marsh Road, Suite C-200, Menlo Park, CA 94025. In order to meet publication deadlines, send your information six to eight weeks in advance. Check with the contacts listed for any schedule changes that may arise in the interim.*

—Barbara Gerik, Events Editor



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432.5, 435, 437.5, 440, 442.5, 445, 447.5, 450, 452.5, 455, 457.5, 460, 462.5, 465, 467.5, 470, 472.5, 475, 477.5, 480, 482.5, 485, 487.5, 490, 492.5, 495, 497.5, 500, 502.5, 505, 507.5, 510, 512.5, 515, 517.5, 520, 522.5, 525, 527.5, 530, 532.5, 535, 537.5, 540, 542.5, 545, 547.5, 550, 552.5, 555, 557.5, 560, 562.5, 565, 567.5, 570, 572.5, 575, 577.5, 580, 582.5, 585, 587.5, 590, 592.5, 595, 597.5, 600, 602.5, 605, 607.5, 610, 612.5, 615, 617.5, 620, 622.5, 625, 627.5, 630, 632.5, 635, 637.5, 640, 642.5, 645, 647.5, 650, 652.5, 655, 657.5, 660, 662.5, 665, 667.5, 670, 672.5, 675, 677.5, 680, 682.5, 685, 687.5, 690, 692.5, 695, 697.5, 700, 702.5, 705, 707.5, 710, 712.5, 715, 717.5, 720, 722.5, 725, 727.5, 730, 732.5, 735, 737.5, 740, 742.5, 745, 747.5, 750, 752.5, 755, 757.5, 760, 762.5, 765, 767.5, 770, 772.5, 775, 777.5, 780, 782.5, 785, 787.5, 790, 792.5, 795, 797.5, 800, 802.5, 805, 807.5, 810, 812.5, 815, 817.5, 820, 822.5, 825, 827.5, 830, 832.5, 835, 837.5, 840, 842.5, 845, 847.5, 850, 852.5, 855, 857.5, 860, 862.5, 865, 867.5, 870, 872.5, 875, 877.5, 880, 882.5, 885, 887.5, 890, 892.5, 895, 897.5, 900, 902.5, 905, 907.5, 910, 912.5, 915, 917.5, 920, 922.5, 925, 927.5, 930, 932.5, 935, 937.5, 940, 942.5, 945, 947.5, 950, 952.5, 955, 957.5, 960, 962.5, 965, 967.5, 970, 972.5, 975, 977.5, 980, 982.5, 985, 987.5, 990, 992.5, 995, 997.5, 1000, 1002.5, 1005, 1007.5, 1010, 1012.5, 1015, 1017.5, 1020, 1022.5, 1025, 1027.5, 1030, 1032.5, 1035, 1037.5, 1040, 1042.5, 1045, 1047.5, 1050, 1052.5, 1055, 1057.5, 1060, 1062.5, 1065, 1067.5, 1070, 1072.5, 1075, 1077.5, 1080, 1082.5, 1085, 1087.5, 1090, 1092.5, 1095, 1097.5, 1100, 1102.5, 1105, 1107.5, 1110, 1112.5, 1115, 1117.5, 1120, 1122.5, 1125, 1127.5, 1130, 1132.5, 1135, 1137.5, 1140, 1142.5, 1145, 1147.5, 1150, 1152.5, 1155, 1157.5, 1160, 1162.5, 1165, 1167.5, 1170, 1172.5, 1175, 1177.5, 1180, 1182.5, 1185, 1187.5, 1190, 1192.5, 1195, 1197.5, 1200, 1202.5, 1205, 1207.5, 1210, 1212.5, 1215, 1217.5, 1220, 1222.5, 1225, 1227.5, 1230, 1232.5, 1235, 1237.5, 1240, 1242.5, 1245, 1247.5, 1250, 1252.5, 1255, 1257.5, 1260, 1262.5, 1265, 1267.5, 1270, 1272.5, 1275, 1277.5, 1280, 1282.5, 1285, 1287.5, 1290, 1292.5, 1295, 1297.5, 1300, 1302.5, 1305, 1307.5, 1310, 1312.5, 1315, 1317.5, 1320, 1322.5, 1325, 1327.5, 1330, 1332.5, 1335, 1337.5, 1340, 1342.5, 1345, 1347.5, 1350, 1352.5, 1355, 1357.5, 1360, 1362.5, 1365, 1367.5, 1370, 1372.5, 1375, 1377.5, 1380, 1382.5, 1385, 1387.5, 1390, 1392.5, 1395, 1397.5, 1400, 1402.5, 1405, 1407.5, 1410, 1412.5, 1415, 1417.5, 1420, 1422.5, 1425, 1427.5, 1430, 1432.5, 1435, 1437.5, 1440, 1442.5, 1445, 1447.5, 1450, 1452.5, 1455, 1457.5, 1460, 1462.5, 1465, 1467.5, 1470, 1472.5, 1475, 1477.5, 1480, 1482.5, 1485, 1487.5, 1490, 1492.5, 1495, 1497.5, 1500, 1502.5, 1505, 1507.5, 1510, 1512.5, 1515, 1517.5, 1520, 1522.5, 1525, 1527.5, 1530, 1532.5, 1535, 1537.5, 1540, 1542.5, 1545, 1547.5, 1550, 1552.5, 1555, 1557.5, 1560, 1562.5, 1565, 1567.5, 1570, 1572.5, 1575, 1577.5, 1580, 1582.5, 1585, 1587.5, 1590, 1592.5, 1595, 1597.5, 1600, 1602.5, 1605, 1607.5, 1610, 1612.5, 1615, 1617.5, 1620, 1622.5, 1625, 1627.5, 1630, 1632.5, 1635, 1637.5, 1640, 1642.5, 1645, 1647.5, 1650, 1652.5, 1655, 1657.5, 1660, 1662.5, 1665, 1667.5, 1670, 1672.5, 1675, 1677.5, 1680, 1682.5, 1685, 1687.5, 1690, 1692.5, 1695, 1697.5, 1700, 1702.5, 1705, 1707.5, 1710, 1712.5, 1715, 1717.5, 1720, 1722.5, 1725, 1727.5, 1730, 1732.5, 1735, 1737.5, 1740, 1742.5, 1745, 1747.5, 1750, 1752.5, 1755, 1757.5, 1760, 1762.5, 1765, 1767.5, 1770, 1772.5, 1775, 1777.5, 1780, 1782.5, 1785, 1787.5, 1790, 1792.5, 1795, 1797.5, 1800, 1802.5, 1805, 1807.5, 1810, 1812.5, 1815, 1817.5, 1820, 1822.5, 1825, 1827.5, 1830, 1832.5, 1835, 1837.5, 1840, 1842.5, 1845, 1847.5, 1850, 1852.5, 1855, 1857.5, 1860, 1862.5, 1865, 1867.5, 1870, 1872.5, 1875, 1877.5, 1880, 1882.5, 1885, 1887.5, 1890, 1892.5, 1895, 1897.5, 1900, 1902.5, 1905, 1907.5, 1910, 1912.5, 1915, 1917.5, 1920, 1922.5, 1925, 1927.5, 1930, 1932.5, 1935, 1937.5, 1940, 1942.5, 1945, 1947.5, 1950, 1952.5, 1955, 1957.5, 1960, 1962.5, 1965, 1967.5, 1970, 1972.5, 1975, 1977.5, 1980, 1982.5, 1985, 1987.5, 1990, 1992.5, 1995, 1997.5, 2000, 2002.5, 2005, 2007.5, 2010, 2012.5, 2015, 2017.5, 2020, 2022.5, 2025, 2027.5, 2030, 2032.5, 2035, 2037.5, 2040, 2042.5, 2045, 2047.5, 2050, 2052.5, 2055, 2057.5, 2060, 2062.5, 2065, 2067.5, 2070, 2072.5, 2075, 2077.5, 2080, 2082.5, 2085, 2087.5, 2090, 2092.5, 2095, 2097.5, 2100, 2102.5, 2105, 2107.5, 2110, 2112.5, 2115, 2117.5, 2120, 2122.5, 2125, 2127.5, 2130, 2132.5, 2135, 2137.5, 2140, 2142.5, 2145, 2147.5, 2150, 2152.5, 2155, 2157.5, 2160, 2162.5, 2165, 2167.5, 2170, 2172.5, 2175, 2177.5, 2180, 2182.5, 2185, 2187.5, 2190, 2192.5, 2195, 2197.5, 2200, 2202.5, 2205, 2207.5, 2210, 2212.5, 2215, 2217.5, 2220, 2222.5, 2225, 2227.5, 2230, 2232.5, 2235, 2237.5, 2240, 2242.5, 2245, 2247.5, 2250, 2252.5, 2255, 2257.5, 2260, 2262.5, 2265, 2267.5, 2270, 2272.5, 2275, 2277.5, 2280, 2282.5, 2285, 2287.5, 2290, 2292.5, 2295, 2297.5, 2300, 2302.5, 2305, 2307.5, 2310, 2312.5, 2315, 2317.5, 2320, 2322.5, 2325, 2327.5, 2330, 2332.5, 2335, 2337.5, 2340, 2342.5, 2345, 2347.5, 2350, 2352.5, 2355, 2357.5, 2360, 2362.5, 2365, 2367.5, 2370, 2372.5, 2375, 2377.5, 2380, 2382.5, 2385, 2387.5, 2390, 2392.5, 2395, 2397.5, 2400, 2402.5, 2405, 2407.5, 2410, 2412.5, 2415, 2417.5, 2420, 2422.5, 2425, 2427.5, 2430, 2432.5, 2435, 2437.5, 2440, 2442.5, 2445, 2447.5, 2450, 2452.5, 2455, 2457.5, 2460, 2462.5, 2465, 2467.5, 2470, 2472.5, 2475, 2477.5, 2480, 2482.5, 2485, 2487.5, 2490, 2492.5, 2495, 2497.5, 2500, 2502.5, 2505, 2507.5, 2510, 2512.5, 2515, 2517.5, 2520, 2522.5, 2525, 2527.5, 2530, 2532.5, 2535, 2537.5, 2540, 2542.5, 2545, 2547.5, 2550, 2552.5, 2555, 2557.5, 2560, 2562.5, 2565, 2567.5, 2570, 2572.5, 2575, 2577.5, 2580, 2582.5, 2585, 2587.5, 2590, 2592.5, 2595, 2597.5, 2600, 2602.5, 2605, 2607.5, 2610, 2612.5, 2615, 2617.5, 2620, 2622.5, 2625, 2627.5, 2630, 2632.5, 2635, 2637.5, 2640, 2642.5, 2645, 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3002.5, 3005, 3007.5, 3010, 3012.5, 3015, 3017.5, 3020, 3022.5, 3025, 3027.5, 3030, 3032.5, 3035, 3037.5, 3040, 3042.5, 3045, 3047.5, 3050, 3052.5, 3055, 3057.5, 3060, 3062.5, 3065, 3067.5, 3070, 3072.5, 3075, 3077.5, 3080, 3082.5, 3085, 3087.5, 3090, 3092.5, 3095, 3097.5, 3100, 3102.5, 3105, 3107.5, 3110, 3112.5, 3115, 3117.5, 3120, 3122.5, 3125, 3127.5, 3130, 3132.5, 3135, 3137.5, 3140, 3142.5, 3145, 3147.5, 3150, 3152.5, 3155, 3157.5, 3160, 3162.5, 3165, 3167.5, 3170, 3172.5, 3175, 3177.5, 3180, 3182.5, 3185, 3187.5, 3190, 3192.5, 3195, 3197.5, 3200, 3202.5, 3205, 3207.5, 3210, 3212.5, 3215, 3217.5, 3220, 3222.5, 3225, 3227.5, 3230, 3232.5, 3235, 3237.5, 3240, 3242.5, 3245, 3247.5, 3250, 3252.5, 3255, 3257.5, 3260, 3262.5, 3265, 3267.5, 3270, 3272.5, 3275, 3277.5, 3280, 3282.5, 3285, 3287.5, 3290, 3292.5, 3295, 3297.5, 3300, 3302.5, 3305, 3307.5, 3310, 3312.5, 3315, 3317.5, 3320, 3322.5, 3325, 3327.5, 3330, 3332.5, 3335, 3337.5, 3340, 3342.5, 3345, 3347.5, 3350, 3352.5, 3355, 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3712.5, 3715, 3717.5, 3720, 3722.5, 3725, 3727.5, 3730, 3732.5, 3735, 3737.5, 3740, 3742.5, 3745, 3747.5, 3750, 3752.5, 3755, 3757.5, 3760, 3762.5, 3765, 3767.5, 3770, 3772.5, 3775, 3777.5, 3780, 3782.5, 3785, 3787.5, 3790, 3792.5, 3795, 3797.5, 3800, 3802.5, 3805, 3807.5, 3810, 3812.5, 3815, 3817.5, 3820, 3822.5, 3825, 3827.5, 3830, 3832.5, 3835, 3837.5, 3840, 3842.5, 3845, 3847.5, 3850, 3852.5, 3855, 3857.5, 3860, 3862.5, 3865, 3867.5, 3870, 3872.5, 3875, 3877.5, 3880, 3882.5, 3885, 3887.5, 3890, 3892.5, 3895, 3897.5, 3900, 3902.5, 3905, 3907.5, 3910, 3912.5, 3915, 3917.5, 3920, 3922.5, 3925, 3927.5, 3930, 3932.5, 3935, 3937.5, 3940, 3942.5, 3945, 3947.5, 3950, 3952.5, 3955, 3957.5, 3960, 3962.5, 3965, 3967.5, 3970, 3972.5, 3975, 3977.5, 3980, 3982.5, 3985, 3987.5, 3990, 3992.5, 3995, 3997.5, 4000, 4002.5, 4005, 4007.5, 4010, 4012.5, 4015, 4017.5, 4020, 4022.5, 4025, 4027.5, 4030, 4032.5, 4035, 4037.5, 4040, 4042.5, 4045, 4047.5, 4050, 4052.5, 4055, 4057.5, 4060, 4062.5, 4065, 4067.5, 4070, 4072.5, 4075, 4077.5, 4080, 4082.5, 4085, 4087.5, 4090, 4092.5, 4095, 4097.5, 4100, 4102.5, 4105, 4107.5, 4110, 4112.5, 4115, 4117.5, 4120, 4122.5, 4125, 4127.5, 4130, 4132.5, 4135, 4137.5, 4140, 4142.5, 4145, 4147.5,

# Have backup-copy firms lowered the pirate flag?

BY KATHY CHIN  
Reporter

**S**oftware piracy is a subject that always seems to generate interest, but never does it raise its black flag as high as when a computer exhibition hits town, and last week's Applefest in San Francisco, was no exception.

The traditional atmosphere of the software underground is changing. Pirates — many still using the skull and crossbones to attract attention — are turning to more professional methods to sell their wares. And as the battle stiffens between vendors trying to prevent copying of software and buyers who say they need backup copies, companies are springing up in an effort to aid both sides.

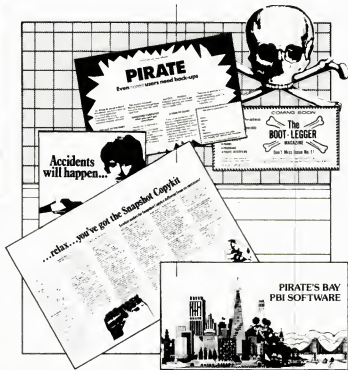
More and more companies are finding profit in selling boards that copy disks, in publishing magazines that assist users in cracking programming codes and in manufacturing other devices that are all perfectly legal — and they find a ready market at consumer shows.

Pirate's Bay, of San Francisco, worked both sides of the fence at Applefest. Down on the show floor, the firm sold its circuit boards and software. Upstairs, in a conference room supplied by the show's management, a little more than a handful of users had paid \$70 each to Pirate's Bay to learn how to copy disks, allegedly for "backup purposes."

Customers were welcome at either of two sessions: a morning beginners' class on basic copying techniques and an afternoon advanced seminar on how to crack codes. Users also obtained a sneak preview of Locksmith 5.0, the latest version of a four-year-old, software-copying program that its developers claim "started the whole controversy."

PBI Software, which operated Pirate's Bay's seminar, flew in two speakers from Chicago-based Omega Microwave, distributor of Locksmith. Ken Rose, its vice-president of marketing, claimed that the Locksmith copying program is intended for users who want to create archival copies of their software.

Rose bristled at the suggestion that Locksmith is intended for piracy, rather than to make backup copies for private use. "We don't advocate piracy, and we'll assist in prosecuting anyone who misuses our program," he said. "We even explain



the copyright law in our documentation."

Rose admitted, though, that the firm really doesn't keep a close watch on the use of its product. "We don't know who buys our programs; we guess that many are the major companies."

Rose also acknowledged the likelihood that some buyers will misuse the program and duplicate software for profit. "There's always a temptation to do anything," Rose said. "It would be like taking a book and copying the pages. There is nothing that can't be copied. But I think the vast majority of users are honest."

Despite Rose's belief, at least one of the few attendees at PBI's seminar was attracted by the pirate flag, rather than by the idea of making backup copies of software. "I came to this conference to learn cracking techniques," declared 15-year-old Kirk Meyers, a high-school sophomore from San Jose, California.

"Our computer club at school, which I

started, has 40 members. We pass disks around and copy them. I already have \$8000 worth of software that I haven't even paid for," Meyers boasted. "I want to learn how to take a copyright program and crack it."

Those whose business is protecting software know that techniques are being passed to people like Meyers, and some are boarding the pirates' ships to find out what's going on.

Ron Sturdevant, an engineer for the Data Encore subsidiary of Verbatim in Sunnyvale, California, said his employer paid for his attendance. His firm devises protection schemes for other companies. "But we have to learn how to break the codes first," Sturdevant pointed out.

Sturdevant, though, did not come away too enlightened, even after watching the demonstration of Locksmith 5.0. "It was nothing terribly surprising. They went through the specifics and walked us

through how to crack a disk. This could have been learned from reading any magazine or any electronic bulletin board," he said.

Beyond copying programs, Pirate's Bay is also looking to profit from the interest in gaining access to protected computer systems. It is distributing a program called War-game, "designed to show how easy it is to do what the kids did [in the film] *WarGames*. It didn't take a lot of brains." The \$19.99 program, used with a modem, can seek carrier tones and generate random access codes, according to Lee Lawrence, founder of Pirate's Bay.

"We didn't sell that many," he claimed. "It's of dying interest."

He admitted that people could use the program for illegal purposes, but contended, "It's just like buying a knife. You can kill someone or use it to cut vegetables. It depends on how you use it. We developed it mainly to satisfy curiosity."

The same bone of contention is raised by developers of software copying tools.

"If people are going to pirate software and sell it, they're not going to use our product," says Norman Napier, president of Pirates' Harbor software house. Napier distributes a program that features a tutorial on cracking techniques. "If someone wants to sell copied software for profit, they will spend \$10,000 to \$15,000 on a machine that copies software."

He maintains that learning to crack a program simply enables a person to become a better programmer, not a pirate.

A few publications are already on the market to instruct users how to break program codes. *The Core*, a quarterly magazine published in Tacoma, Washington, is geared toward Apple users who want to back up their files.

*Boot-Legger Magazine*, a publication based in Cave Junction, Oregon, "by pirates for pirates," charges subscribers \$25 a year for tips on cracking, pirate-board downloads and pirate interviews.

Some other exhibitors, though, eschew the pirate flag entirely, though copying is still their main plank.

Central Point Software in Portland, Oregon, markets Copy II Plus, which duplicates protected IBM PC programs. The firm claims that the \$39 program "backs up" more software than any other program for the IBM PC. Wildcard Plus, distributed by East Side Software in New York City, is a \$189.95 board that copies programs from a computer's memory and loads them onto disk. A company called dark Star Systems in Williamsburg, Massachusetts, sells the Snapshot Copykit, another card that fits in the slot of an Apple II and copies programs in RAM.

A program hawked at the show took the opposite stand of software copying. "Stop the pirate..." reads the brochure

distributed by Double Gold Software of San Jose, California. "Lock It Up," Jeff Gold, president of the company, said that nothing can be done about the firms selling copying devices. That's why he hopes his \$225 product Lock It Up will discourage the pirates. His program changes the format of the diskette, so the software cannot be copied.

Some experts believe that it will take more than that to discourage the pirate.

"Copying software is indicative of what's happening today," says J. Skipper, senior managing-systems consultant at SRI in Menlo Park, California. "Teachers with limited budgets are copying programs

for their schoolchildren. Youngsters grow up believing that it's okay. Something has to be done to change the trend, but it's not going to change overnight.

"I would put people who are teaching classes on how to copy software in the same category as people who teach others how to break into the slot machines at Las Vegas. It's ethically wrong and morally wrong."

Unfortunately, he doesn't have any specific solutions. As long as these product distributors stress that the devices have been devised for backup purposes, then they will continue to be legal, and there will be users and abusers of the products. ■

## Review: Blue

BY JOHN V. LOMBARDI  
Contributor

**B**lue, a word-processing package for the IBM Personal Computer from Symmetric Software, has a good editor with a wide range of unusual features and can competently create a printing format for your text. It offers the facility of some limited multiple-window operation, but if you exceed its limits you could find yourself losing a lot of the work those windows helped create.

As its name indicates, Blue emphasizes color. With this editor and formatter, you can create the color screen in any aesthetically pleasing way. Not all combinations of foreground and background are equally legible, however, and the quality of the display is dependent on the quality of the monitor.

This program excels primarily in its ability to build multiple windows of text and then manipulate them quickly and in numerous ways.

Blue can set up and handle up to eight different windows at the same time; each window can look into a different document or a separate portion of the same text in another window. You set the size and shape of each window, and they can overlap if that is how you want them to work. You can enter or edit in one window, switch to another window and edit a different file or the same file in a different place, return to the original window and find yourself exactly where you left off.

You can move text — about as much as one screen can display — from the file in one window to the file in another window. You can then return to the first file, allowing it to take up the whole screen without disturbing the other windows.

All this is fancy stuff, and in many circumstances also very useful. In addi-

## InfoWorld Report Card

### Blue



	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Summary:** Blue is a word processor of the editor-formatter variety for the IBM Personal Computer. It is an excellent editor, with a wide range of unusual features and a good formatter. It works especially well with small- to medium-size documents or for projects requiring multiple-file manipulation or multiple windowing, but has a dangerous tendency to lose your work if you exceed the text size limit.

**Product Details:** List price, \$150, Available for IBM Personal Computer with PC-DOS, 64K RAM, one disk drive and a printer. Published by Symmetric Software, 3812 East La Palma Avenue, Anheim, CA 92807; (714) 630-8733.

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tion, the program has a wide range of editing functions that work in all windows — some ordinary functions such as deletion, insertion, cursor movement and screen scrolling, and some less frequently found functions such as the ability to move to a coded location in the text, entry of ASCII codes, a macro key and cut-and-paste operations.

Blue has an advanced set of cut-and-paste options that facilitate the movement of text in a document or between documents. Essentially, you can move text as individual words or entire lines. The program maintains two temporary storage areas, one for words and one for lines. You can place many items in each, essentially one on top of the other, and remove them as needed in the reverse order of their storage. The result is a flexible system for cutting and pasting text within and between documents that permits many levels of simultaneous editing.

Blue's strong suit is editing, but its text formatter has most of the bells and whistles associated with similar products. The list of features is long and includes, in addition to standard setup functions (character size, line length, page length, margins, headers, footers, justification and the like) less common features such as automatic footnote placement; the ability to insert long phrases by typing a short name; chapter, section and appendix titles; and lists.

Moreover, the formatter can automatically make use of the special features of a range of printers, especially dot-matrix printers like those made by Epson. With the proper printer, Blue can give you bold and italic print, double-strike and double-width characters, superscripts and subscripts and compressed print. The formatter justifies text with whole-space insertion, though, even on Diablo and other microspacing printers; it does not handle proportional spacing.

Blue's editor is fast. You move about from top to bottom, side to side, and screen to screen with admirable dispatch. If the file is very long — close to the 64,000-character limit — it may take a bit of time to move a significant distance in the text as Blue manipulates text stored on the disk. Even then, the times are on the order of five to ten seconds, which may be acceptable.

The cut-and-paste operations also occur quickly, although the limit on the maximum amount of text permitted in each move may be a limitation for some work.

The eight special windows work well, but they have some limitations. Only one file at a time is actually active, even though you may have up to eight files connected to different windows. When you move from one window and file combination to

another, Blue marks your place and saves the first file. It then gets the second file for you to work on. Each time you switch files, this save-and-load operation takes place. Blue does this rather quickly, but if the file is large, the delay is noticeable. And if you need to move between windows a lot for simultaneous editing, the constant saving and loading can become a nuisance.

The formatter works as you would expect; you make use of the various features by inserting special commands in appropriate places throughout the text. Each command controls some aspect of the document's final appearance.

Apart from the caveats discussed above, Blue is an easy editor to use. Its functions work easily and are not difficult to learn. The management of cut-and-paste activities is good, and the windowing facility is outstanding.

As an editor-formatter, word-processing system, Blue may require test printings to get the format exactly correct, since you don't see what you will get as you enter and edit text. You can, however, display the formatted output on the screen for review.

You can copy the program, which is a definite advantage for backup, RAM-disk and hard-disk use.

Blue handles most errors well. When you first run the program and are asked to specify a file, however, you may end up back in the operating system and have to rerun the program if you do it wrong.

Blue does not handle oversized text well. The program takes about 64K of

characters before it is full. Depending on what you are doing when this limit is exceeded, Blue can exit gracefully or just fail and lose much of your work. It gives you no warning when you approach the end of the file, and there is no indication of file size other than line numbers. This defect, because of its potentially disastrous consequences, requires a "poor" rating on error handling.

The manual supplied with Blue is reasonably clear and comprehensive, although there are error messages in the program that are not explained in the manual. Moreover, the manual does not clearly outline the limits of the program or indicate what consequences can occur should you exceed those limits.

Aside from these limitations, the instructions, examples and explanations permit the first-time user to get the program working correctly with a minimum of confusion. The explanation of the editor's cut-and-paste facility uses some inconsistent terminology, but a couple of readings and some experimentation with the examples clarifies these features.

There is a quick-reference card but no index to the manual, although the table of contents is detailed and usually adequate to find the information you need.

Blue is an excellent editor with a good formatter. Its performance is especially good with small- to medium-sized documents or for projects requiring multiple-file manipulation or multiple windowing. It is, in short, a good program with some rough edges. ●

## Review: OsGraph, OsBoard and OsBrief

BY JONATHAN ANGEL  
*Contributor*

**P**eople have claimed, almost since its release, that the Osborne 1 can't handle graphics. They generally ignored the machine's 32-character graphics set, which is available in two intensities when you invoke some BASIC programs. This trio of programs, OsGraph, OsBoard and OsBrief, should completely eliminate the misunderstanding. Despite the Osborne 1's limitations, you can still get good enough charts or graphs for all but the most critical business applications. (You can use a supported printer to mirror your screen displays.)

OsGraph offers you the ability to take data, either from MBASIC, SuperCalc or dBASE II files or that you've entered manually, and graph it as a horizontal or

vertical bar chart, xy plot (scatter graph) or pie chart. You can preview a chart at any stage in its development before printing it or save it to disk for future editing or display. OsBoard, a "free hand drawing" program, turns the Osborne's keyboard into a graphics editor. Not only can you use it to edit graphs created with OsGraph, but you can also use it to draw and print anything else, such as logos or letterheads. Furthermore, it comes with utilities that let any MBASIC program invoke graphics designed using OsBoard.

OsBrief (which requires OsBoard for use) allows Osborne computers to be used for electronic slide shows. You can display sequentially any number of OsGraph or OsBoard graphic screens on your monitor. You can preset the length of time for each projection or personally change the slides with a keystroke. Fades between screens,

wipes and other special effects are possible with this program.

OsGraph cannot take a formula and automatically plot it for a set of values. It can, however, calculate percentages from your data for a pie chart, and its automatic labeling of the value for every slice or bar overcomes some of the hardware's lack of resolution.

You can store commonly used chart formats and any data used in a separate file in order to try graphing it in several ways. Reading in data from files created by other programs is not difficult; exporting graphics to MBASIC programs works fine too. Charts created by OsGraph are always 25 lines by 80 columns, but you can use OsGraph to truncate or expand them manually, if needed.

The Osborne Executive versions of these programs (which we did not test) offer some additional features. All versions are upward-compatible; graphics created

## InfoWorld Report Card

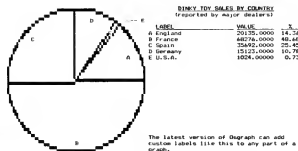
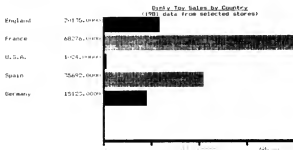
### OsGraph OsBoard OsBrief



Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Summary:** OsGraph, OsBoard and OsBrief are three programs that let your Osborne 1 handle graphics. The resulting graphs or charts are suitable for any business that cares more about function than form.

**Product details:** Priced together, \$64.90; separately, OsGraph, \$34.95; OsBoard, \$29.95; OsBrief, \$24.95. You can run OsGraph on either an Osborne 1 or Osborne Executive; separate versions of OsBoard and OsBrief have been developed for each of the Osborne machines. You need 64K RAM and either a dot-matrix or daisy-wheel printer. Distributed by DG/Systems, 23145 Bigler Street, Woodland Hills, CA 91364; (213) 716-1655.



A bar chart and pie chart with custom labels created on an Osborne 1 with the OsGraph graphics program

on an Osborne 1 can be used on the Executive as well.

All three programs are easy to install and to begin using. There is only one minor annoyance: For each kind of graph, you must call up a different program from CP/M — HBAR.COM, VBAR.COM, XY.COM, PIE.COM and so on. The same is true for printer drivers; for example, to print files on an Epson printer, you have to call up MXPRINT.COM from CP/M. A master menu *might* have been a more obvious solution; but for those who regularly produce only one type of graph on one type of printer, the present program structure does save disk space and streamline operation. Producing graphs with OsGraph is easy, thanks to the automatic scaling and labeling and to the opportunity to check what you are doing at every point. Choosing proper width and spacing for the bars in the bar graphs might be a "problem" initially, but you can save these parameters in a format file once you've decided. OsBrief is totally straightforward (you set up command files using WordStar or another text editor). OsBoard could only be simpler if you can find an easy way to memorize what each key on the keyboard represents in the graphics-entry mode (the manual has a list for you to consult).

These versions of these programs either handle errors well. The programs either trapped or warned us against any error that we were able to make. You can monitor disk space from within the program, and should a disk become full during an attempted file save, you can simply switch to a new one (because a disk reset is automatically generated before any write operation).

Documentation is good and printed clearly via an Epson with Fancy Font software. The manuals are a nice combination of the tutorial and reference approaches. They are easy to skim yet contain all the information needed, with illustrations where appropriate.

Support for these programs was personal and efficient. According to the User Agreement, registered users are eligible for reduced prices on program revisions.

OsBoard, OsGraph and OsBrief are worthwhile programs, particularly for anyone who wants to add graphics to MBASIC programs on the Osborne. The graphs that can be created, although crude in some ways, will suit any business that values function over form.

Now that Osborne Computer Corporation is not marketing them, the re-release of these programs at lower prices is definitely good news for Osborne users. ●

# Review: MegaWriter

BY STEPHEN SATCHELL

Contributor

**M**egawriter is one of the newer generation of inexpensive word processors, providing the buyer with a useful package, including print-formatting and mail-merge abilities, for \$100. You get what you pay for, though: It is slow and rife with inconsistencies and, in some cases, you can unexpect-

product, though, does not check any documents created by programs under the MS-DOS operating system. Megahaus is reportedly working on that angle now.

MegaWriter presents all its options to you in the form of choices within menus throughout all three of its facilities: the word processor, the print processor and the disk organizer.

The word processor permits you to insert part or all of one document into

menu is displayed. But unpredictable failure can be the worst kind.

More serious errors you might encounter with MegaWriter are the Stack Overflow and Exec errors. You have to restart your computer to recover from the Stack Overflow error, and you have to shut off the computer's power entirely to recover from the Exec error.

MegaWriter also has a more basic flaw in its word-processing operations. A word processor is a program that, by definition, processes words. MegaWriter, however,

*Many menus are missing valid options. What you see on the screen doesn't always reflect what you have in your text.*

edly lose your text.

If you are on a tight budget, however, and need a workable word processor and printer formatter to generate small- to moderate-size letters, MegaWriter merits at least some consideration.

This package is written in UCSD Pascal, which is in part responsible for its lack of speed. The UCSD Pascal System does not permit as fast a program as would a native-code Pascal compiler.

MegaWriter is available for the Apple II and the IBM Personal Computer; we reviewed version B1.0 for the PC on a Compaq microcomputer using a Prowriter printer.

The version of MegaWriter for the Apple II and the IBM differs somewhat from the IBM PC-compatible version we tested. For one thing, it is about 40% less expensive, at \$59.95 rather than the \$99.95 for the IBM version. It also lacks a document-scanning feature that permits you, according to the manufacturer, to locate stored documents by keyword. We did not test this feature.

An optional spelling checker called MegaSpell, which we also did not test, permits you to scan either MegaWriter documents or other documents created by word processors running under the UCSD p-System. Megahaus says it will ignore any format commands stored in the document. The IBM version of the

another. It also allows you to justify only selected paragraphs and provides for on-screen alignment of text (flush left, flush right or center). You can look through an entire document and replace all occurrences of one word or phrase with another, and you can easily set up the format of your document and symbolically mark places within the text.

The menu structure permits you to issue commands to MegaWriter using letter keys instead of control-key sequences, making the program easy to learn and use.

The simplicity works against you, however, if you attempt to create and edit documents while sitting in front of the computer, rather than typing in some previously written material and then editing it. You might well spend more time keeping track of whether you are currently set up to enter text or edit it than thinking about the content of your work. Making choices from menus also requires you to use more keystrokes to perform a given operation.

Furthermore, you cannot "type ahead"; in fact, this is the greatest problem area in MegaWriter. There are occasions when typing ahead causes the program to fail and lose the text you have been working on. This is not always the case; sometimes, the program simply doesn't accept the keystrokes until a new

## InfoWorld Report Card

### MegaWriter Version B1.0



	Poor	Fair	Good	Excellent
Performance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Summary:** MegaWriter, an inexpensive word processor, provides you with print-formatting and mail-merge abilities. It is adequate for generating small- to medium-size letters. The print formatter is worth the price, but the rest of the package is generally slow and inconsistent and has some flaws that can cause you to unexpectedly lose your text.

**Product details:** List price, \$99.95. Requires Apple II or IIe, IBM PC or PC-compatible machine with a minimum of 64K of RAM and two double-density disk drives. Published by Megahaus Corporation, 5703 Oberlin Drive, San Diego, CA 92121; (619) 450-1230.

does not permit the cursor to be positioned word-by-word at any time. This means that you cannot delete parts of your text a word at a time — a definite drawback. (You can, however, find and replace words; moreover, the "word wrap" facility takes account of individual words, as does the justification of text.)

Converting from an editor that uses PC-DOS files? Save your old editor; MegaWriter has no way to move the old stuff over.

The print facility, however, is good; in

**Your choices  
for printing  
options are  
saved with each  
document, a  
definite plus.**

fact, it's by far the best part of the product. It permits you to maintain complete control of all your printing operations. Printer options, such as line justification, underline, bold printing and others, can be controlled by format commands you place in the text as well as by commands you select from a menu. A mail-merge feature is also included with the package.

Your choices for printing options are saved with each document — a plus if you are working on more than one document and don't want to have to enter your choices over and over again. The program justifies text well, especially with proportional spacing, and with enough speed to keep up with the 120-character-per-second Prowriter.

The header and page-number options are usable but limited. There is no way to control the number of blank lines between the header line and the body of the text or between the body of the text and the page number. If you print a draft copy, double-spaced, the header does not stand out, nor does the page number. Also, once you start printing a document you cannot easily stop the process.

With MegaWriter, you can't use a serial-interface printer or more than one parallel-interface printer, at one time — another disappointment.

The third segment of MegaWriter, the disk organizer, permits you to back up documents, change their names and delete them either by name or by selecting the

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desired ones from a list displayed on the screen. It also allows you to prepare a new blank disk for use with MegaWriter or reorganize an old one to make the best use of the remaining space. The disk organizer provides all the document-cataloging features you need, and the full-screen display of document names makes backup easy. This is a definite plus for MegaWriter.

The backup facility also provides you with the ability to preserve an older version of a document as well as a version containing later revisions. By choosing a new name for the revised document and storing it, you can keep both the new and the old versions on disk. Be warned that a single document can take over a disk that way, however.

No provision is made to back up the MegaWriter system disk, though. In fact, the license agreement specifically prohibits you from copying the system disk. Megahaus Corporation offers to provide a backup disk for \$15 at the time of registration or \$20 later.

The manual is well written, in plain English, and organized in a straightforward manner as a tutorial. It consists of a series of 12 lessons, which does make it difficult to use as a reference document after you have learned the program. The design of the product minimizes your need

to refer to the manual at that stage.

The manual and the program organization work together to make MegaWriter an easy program to learn. After reading the lessons and working the exercises, you can most likely produce your first document with a minimum of trouble.

In general, though, it is the inconsis-

always accurately reflect the current state of your text. On top of that, some of the screen prompts are misspelled.

Even though all of these problems can be easily corrected, they still make for a less than professional product.

Developers of low-cost word processing packages admit their products are not

## The menu structure permits you to issue commands to MegaWriter using letter keys instead of control-key sequences.

tencies that are this product's downfall. Screen scrolling and cursor control are inconsistent. The results you obtain when you press a key other than a letter or a number are not what you might expect, especially with the arrow keys. Pressing the down-arrow, particularly, does unusual things.

Although some of the menus are complete, many are missing valid options. And what you see on the screen does not

the equivalent of high-priced word processors like WordStar. They think buyers should expect to make sacrifices in exchange for getting a word processor at a lower price. You might expect to give up certain screen display features, speed and file length abilities, but you don't expect to sacrifice quality performance or inexplicably lose documents just because you don't spend \$800. Unfortunately, that's what MegaWriter expects from you.

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# Review: Miles Payroll System

BY ANNIE CATES

Contributor

**M**iles Payroll System is a payroll system for the Atari 800 home computer that is suitable for small- and medium-size companies. It can handle information for up to 50 employees on one diskette. Miles Payroll can generate paychecks as well as a variety of yearly reports. To use the program you need 32K or more of memory, two disk drives, an Atari 850 Interface module, a television or monitor and any standard 80-column printer.

Miles Payroll System allows you to pinpoint specific employees easily and to update their records; you do not have to cycle through all of the employee numbers to find the one you wish to change.

The program even takes into account employees who may be working under a

special visa or with a green card. In the place where you would enter a social-security number, you can enter both alphabetic and numeric information.

The program allows you various combi-

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nations of payroll types and deductions. Pay periods can cover weekly, biweekly, semimonthly or monthly time spans. You are given a choice of regular, overtime,

double-time, sick, legal holiday, vacation, bonus or commission pay; you simply designate with an A or I which categories are active or inactive. You can change a category's status at any time, and yet Miles Payroll System also retains the last three pay changes for each employee.

Deductions that the system allows you to make include federal, state and city withholding taxes; FICA (Federal Insurance Contributions Act); SDI (State Disability Insurance); group insurance; and three user-defined deductions. From the user-defined deductions, you can create tax shelters — for instance, a tax-sheltered annuity such as an IRA (individual retirement account). Miles Payroll System has built-in tax tables that are easy to update. You can also maintain state and federal unemployment insurance records with this program.

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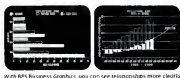
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compensation, you can take advantage of Miles Payroll System's ability to handle information for compensation classifications.

Miles Payroll System lets you generate 15 different reports. For running pay-period reports, you can run reports without affecting your employee-data diskette.

Many of the reports are variations on a basic employee report. You can create standard-deduction reports for period-to-date, for month-to-date and for year-to-date. You can generate period, month and year-to-date group-insurance reports as well as a month-to-date workers' compensation report. Other report capabilities include a tax-sheltered, annuity-deduction report; employee-pay-history report; time-card entries; W-2-forms report and quarterly and yearly earnings reports.

The program's check-printing ability is an outstanding feature. Miles Payroll System automatically calculates all of the deductions and overtime and any other categories you activate, and then prints a beautiful, finished check. You can even order checks and envelopes from Miles Computing, and it will add a custom logo for a small additional charge.

The performance of Miles Payroll System is excellent. It handles all its promised features quickly and easily. Computer novices will have no problem using this program. You will find it easy to follow the well-written manual, which gives you step-by-step instructions coupled with screen pictures, charts and other helpful visuals. It is an easy-to-learn program that is very powerful.

Although earlier versions of Miles Payroll System had snags that could cause crashes, this version is improved and relatively bugless — a well-protected program. Of course, you must be careful to check for possible errors in your tax tables.

The well-written manual has all the features you'd want — a table of contents and an index — and some other thoughtful features. It comes with two plastic pages to store the program and data diskettes. The binder has two built-in pockets to let you store your tax tables and other notes.

The manual contains six appendices. Appendix A helps new users decide how to start. It details the differences between entering all the year-to-date information as opposed to maintaining totals from the time you start to use Miles Payroll System — with strong recommendations that you take the time to enter all of the year-to-date information you had been maintaining manually.

Appendix B explains the correct procedures that you must follow for each pay period. Appendix C, Appendix D and Appendix E contain the necessary steps to

ensure proper updating of your End of Month information, your End of Quarter information and your End of Year information, respectively. Appendix F tells you what other supplies you need to effectively use Miles Payroll System.

Miles Computing is a small company that cares about users of this program. When we called with questions about the program, it called us back within two hours. During the several months we worked on this review Miles Computing kept us informed with several updates that explained how to use some of the functions in a slightly different way.

In all respects — features, performance, ease of use, documentation and support — this is a professionally conceived and executed program. We look forward to other business software from Miles Computing that will serve the needs of Atari owners.

## InfoWorld Report Card

### Miles Payroll System



	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Summary:** Miles Payroll System, for the Atari 800, is a thoughtfully planned and well-executed payroll program especially suitable for companies with 50 or fewer employees. The system has most payroll features that you would need. You can calculate payrolls based on weekly, biweekly, semimonthly or monthly time spans and adjust the pay scale, depending on special circumstances. It can also print 15 different reports, as well as actual payroll checks.

**Product details:** List price, \$179. Requires Atari 800, 32K or more of RAM, two disk drives and a printer. Published by Miles Computing, 7136 Haskell Avenue, Suite 204, Van Nuys, CA 91406; (213) 994-6279.

Submit a one-page program description to:

**ECG**  
21738 So. Avalon Blvd.  
P.O. Box 145  
Carson, CA 90746

All replies will be acknowledged.



# Electronic Antics



**BY SCOTT MACE**  
Senior Editor

**A** reporter from a famous monthly computer publication was having a rough time. The Schellville Airport was no place to be caught wearing a three-piece suit, even for a press conference. The airport, 20 miles north of San Francisco in Sonoma County, has a small collection of shacks and Quonset huts, about a dozen small planes and a dirt landing strip, and on this day, a tent in a field at the end of the strip. It was a jeans-and-T-shirt day. The weather was perfect for flying.

What really made it tough for this reporter was the contest that had brought him into the country. He was a passenger in a World War I-vintage stunt plane, making passes over a chalked-in circle about 25 feet across. At the proper moment, the inappropriately attired reporter was supposed to drop one of his three bags of flour out the side of his open cockpit and try to hit the circled area, but he couldn't even come close. The wind kept blowing his plane too far downwind of the target; also, his pilot was coming in too high for him to get an accurate shot. Other volunteers took their own shots at the target. A writer for *Video Store Magazine*, wearing a T-shirt, came far closer in a low- and slow-flying plane, winning the contest with a flour bomb well within the circle.

Under the tent, a group of writers, press agents and software developers had their eyes fixed to TV screens where World War I biplanes engaged with the enemy while trying to bomb ground targets. The video-game players ran into the same problems the airborne reporter had had, trying to judge when to drop bombs from the plane while dealing with gusts of wind and quickly changing altitude. Of course, this video game



Synapse Software's *Blue Max* simulates acrobatics and stimulates thinking.

contained far more perils for its players than the lazy turns of the antique planes roaring overhead.

The man who staged this wacky publicity event was Ihor Wolosenko, president of Synapse Software. Ihor decided to rent this country airport and some crack stunt pilots for a day to introduce the press to a new computer video game, *Blue Max*.

Wolosenko's company has sold a lot of computer games with names like *Necromancer* and *Slime*, but you don't hear much about Synapse. Perhaps that's because so much of Synapse's software runs on Atari, and Atari's star is not on the rise. Synapse is in the midst of correcting that mistake, however, and is converting its software to the Commodore 64 (like every other software producer, including Atari itself).

I'm no believer in games that revel in violence. True, aerial dogfight games and the like have their share of "killing," but *Blue Max* is more a thinking game, more a simulation of real acrobatics than the others. Shooting reflexes are necessary, yes, but you can only win if you outthink your opponents in this realistic simulation.

The object of *Blue Max* is to fly your

plan past enemy antiaircraft, enemy planes and enemy airbases until you reach the enemy city, where you must bomb three targets.

Your viewing angle is not flat, as in *River Raid* or other such lesser games; rather, it is the same angle as in *Zaxxon*. Your craft is flying at a 60-degree angle to the upper left while the ground rolls by at the same angle below. You can move up and down, as well as left and right. (You can't "loop-de-loop.") Your altimeter is an accurate numerical readout, though the screen border flashes blue to alert you when your plane and an enemy plane are at the same altitude.

I had to know if I had "the right stuff," to quote a popular movie. I loaded the *Blue Max* disk in the Atari, revved up my first plane, reached the mandatory ground speed of 100 mph and pulled back on the stick.

Immediately, my plane was airborne. Suddenly, a warning message: incoming plane. I veered left, dropped 30 feet and fired. Missed it by an inch. I climbed back up, then dropped and pressed my bomb button, aiming for bridges, buildings and passing trucks.

I had to hit objects with flashing

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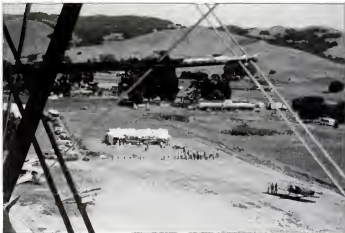
beacons, including some enemy planes, in order to advance toward the city. Occasionally, just to build up points, I could drop perilously close to the ground and strafe enemy antiaircraft emplacements.

Refueling was tricky. As I approached the landing strip, a light flashed on and a warning sounded. I had to extend the

## I would never play Synapse Software's Blue Max wearing a three-piece suit.

plane's landing gear. Then I had to line up with the runway and drop to 25 feet, which slowed my airspeed. I lined up with the runway and touched down. I needed a good chunk to land and another good chunk to take off again.

After several minutes of this, I finally entered the gray-walled city, where I had



SCOTT MACE

*Intrepid reporter Scott Mace serves in on his stories. From a WWI biplane, he takes a bombardier's-eye view of the Blue Max kickoff in Sonoma County, California.*

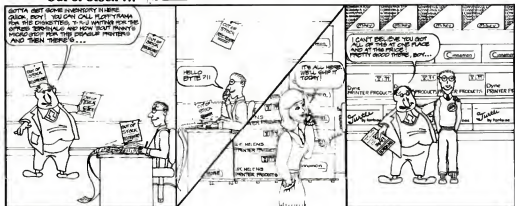
to bomb three targets. Between refuelings, the enemy forces can cripple your bomb-bay doors, your gun or maneuverability. Blue Max author Bob Polin designed the game so the scrolling terrain is created dynamically; thus, the enemy

placement follows no pattern.

If arcade games are to survive the current glut of mediocrity, they must become more true-to-life. Blue Max is a step in that direction. I wouldn't play it in a three-piece suit.

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# New Programs

**Overcoming computerphobia:** Learning Lab is designed to help new computer users overcome their fear of personal computers.

Learning Lab teaches basic computer-programming concepts for the HX-20 personal computer that a new user can understand and use immediately. It is composed of several modules, each of which introduces the user to another aspect of his computer. There is the Guessing Game, which familiarizes the user with computer prompts and introduces the concept of random numbers and looping; and a Math module, which introduces arithmetic expressions and the concept of variables.

Other modules explore graphics, simple probability, elementary financial calculations, methods of controlling the display and sound effects. Application-oriented modules, which include physics using trigonometric-based solutions, music, game creation and integrated programming, are also included.

The suggested retail price is \$49.95. Epsom America, 3415 Kashiwa Street, Torrance, CA 90505.

**HP-85 owners get CP/M:** The CP/M operating system is now available for the HP-85, permitting owners of the machine to access software written for the Hewlett-Packard models 86 and 87. CP/M also allows access to numerous programming languages and utility programs, and it provides support for terminals and other peripheral devices.

HP-85 CP/M is priced at \$195. You can purchase it on either 5¼-inch or 3½-inch media. Eighty+, 1287 Lawrence Station Road, Sunnyvale, CA 94089; (408) 741-5431.

**Investors and traders get help:** A new stock-market decision-support software system, Winning on Wall Street, is designed for stock-market investors and traders. The three-module system offers four products: Trader's Data Manager, the program's data base; Trader's Forecaster, a forecasting and technical analysis tool kit; Trader's Accountant, a portfolio-management module; and a complete package of the three systems.

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vides you with the capability of maintaining daily, weekly, monthly, yearly and quarterly data and can include up to 20 years of annual data.

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Trader's Data Manager retails at about \$200. Trader's Forecaster at about \$250. Trader's Accountant at about \$350. Winning on Wall Street — The Complete System sells for about \$700. Summa Software Corporation, P.O. Box 2046, Beaverton, OR 97075; (503) 644-3212.

**Languages available for the IBM 3270 PC:** Programming languages and related products for the IBM 3270 Personal Computer are available for sale from Digital Research. The products include Level II COBOL; Animator, a program debugger; Forms II, a screen generator for COBOL; a native-code generator; PL/I; Pascal/MT+; Digital Research C; CBASIC Compiler; Access Manager; Display Manager; micro/SPF; Programmer's Utilities; and Symbolic Debugger. Digital Research, 160 Central Avenue, Pacific Grove, CA 93950, (408) 649-3290.

**Portable software makes busi-**

**ness life easier:** Traveling Software's Business Manager's Series is designed for Radio Shack's TRS-80 Model 100 portable. The series contains eight separate programs.

Traveling Time Manager records time expenditures by project, client and work activity; identifies hours worked as either billable or nonbillable (billing rates can be preset); and manages hourly usage of equipment and machinery.

Traveling Time Manager provides a complete customer order-entry system that keeps track of both customer and product information.

Other programs manage appointment schedules, expense accounts, taxes and project resources. A bookkeeping and a portable-to-desktop communications program are also included in the series. The Traveling Communicator provides complete integration of information contained on a portable briefcase computer with software—such as VisiCalc, Multitran or Lotus 1-2-3—running on a desktop computer.

Each Business Manager product sells for \$59. The Business Manager's Series programs will be sold for all leading briefcase computers at select dealers and direct from the manufacturer. Traveling Software, 11050 Fifth Avenue NE, Seattle, WA 98125; (206) 367-8090.

**BOOKS! the electric ledger:** This new accounting program allows users to perform the functions of journal entry and preparation of income statements and balance sheets simply by pushing a button. Ledger sheets appear on the screen, entries are made on these screen pages and you can scan or add to the chart of accounts while in the middle of a journal entry. You can view entire journals and ledgers as easily as flipping through pages or changing binders.

BOOKS! coordinates all parts of the bookkeeping and accounting routine, allowing for 512-character journal-entry descriptions and 30-character account names. The account description can also be set up as the account number through the use of an indexing technique.

The program comes with a

computer-aided tutorial and sample chart of accounts. BOOKS! checks to see if transactions are in balance once they are entered and prints a record of the entry, if desired. It also stores the journal in entry order.

BOOKS! is available for most popular operating systems, including CP/M-80 and -86, Apple DOS and MS-DOS. Pricing is not yet set. Systems Plus, Inc. 1120 San Antonio Road, Mountain View, CA 94033; (415) 969-7047.

**Data-base management for the IBM PC:** Concentric Data Systems has announced its database/information-management and report-writing program for the IBM Personal Computer. Called the Concentric Information Processor (C.I.P.), it permits users to see the results of report writing on the screen just as they will appear in final form.

A horizontal-scrolling capability allows 132-column reports to be visually defined using an 80-column display. Titles and footnotes can be created on the screen, and you can set their formats properly in conjunction with the report.

C.I.P. requires no command language, yet the program is powerful enough to accommodate complex business, professional and personal record-keeping and report-writing needs. Some typical applications include inventory control, customer files, asset management, tickler files, order tracking, invoicing, mailing labels and directory lists.

The program also features a calculation facility that includes date arithmetic, allowing the program to be used for business applications previous data-base products could not handle.

C.I.P. is priced at \$395. It will be available to retailers nationwide in January. Concentric Data Systems, 18 Lyman Street, Westboro, MA 01581; (617) 366-1122. ●

*Specifications for products described on this page are supplied by the manufacturers or firms marketing these products. InfoWorld does not guarantee their accuracy.*

—Compiled by Carol Ranalli

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If you'd rather see one entry at a time, just flip into "forms" mode. You can enter data either way.

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PHONE	CITY/STATE	DATE	GR.	AMT.	CODE
295-342-8980	SELMA, AL	04/01/83	37.50	C-133	
313-256-7865	DETROIT, MI	04/02/83	996.75	B-365	
216-345-7296	CLEVELAND, OH	04/19/83	501.75	B-183	
212-333-6680	NEW YORK, NY	04/22/83	395.96	B-645	
216-561-9428	CLEVELAND, OH	04/22/83	775.35	B-564	
216-974-4278	CLEVELAND, OH	04/24/83	583.81	A-111	
383-444-4400	PUEBLO, CO	04/24/83	754.45	B-111	
32-48-654-81	TOKYO, JAP	04/26/83	848.00	B-645	
316-985-6738	MICHITA, KS	04/30/83	55.76	C-133	
817-667-3475	FT. WORTH, TX	05/04/83	963.00	A-111	
716-589-5732	ROCHESTER, NY	05/09/83	901.23	B-183	
513-902-7454	DAYTON, OH	05/14/83	356.75	B-564	
209-866-7773	TURLOCK, CA	05/14/83	295.67	B-645	
313-363-4951	DETROIT, MI	05/19/83	901.23	A-111	
581-825-5469	FT. SMITH, AK	05/26/83	39.86	C-133	

ORDER DATA

ORDER#	COMPANY	PHONE	CITY/STATE	DATE	GR.	AMT.	CODE
1000001	ABC COMPANY	212-555-1234	NEW YORK, NY	01/01/83	100.00	100.00	A-111
1000002	DEF COMPANY	212-555-5678	NEW YORK, NY	01/02/83	200.00	200.00	B-111
1000003	GHI COMPANY	212-555-9012	NEW YORK, NY	01/03/83	300.00	300.00	C-111
1000004	JKL COMPANY	212-555-3456	NEW YORK, NY	01/04/83	400.00	400.00	D-111
1000005	MNO COMPANY	212-555-7890	NEW YORK, NY	01/05/83	500.00	500.00	E-111
1000006	PQR COMPANY	212-555-2345	NEW YORK, NY	01/06/83	600.00	600.00	F-111
1000007	STU COMPANY	212-555-6789	NEW YORK, NY	01/07/83	700.00	700.00	G-111
1000008	VWX COMPANY	212-555-0123	NEW YORK, NY	01/08/83	800.00	800.00	H-111
1000009	YZA COMPANY	212-555-4567	NEW YORK, NY	01/09/83	900.00	900.00	I-111
1000010	BCD COMPANY	212-555-8901	NEW YORK, NY	01/10/83	1000.00	1000.00	J-111

That's just a start. FilePlan eliminates most mistakes—or helps you correct them. If you forgot to include a category or need more room for a field, you can make changes any time. For someone who's inexperienced at data entry, just specify



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# Low-cost letter-quality printers face home tests

BY SCOTT MACE

Senior Editor

**T**he introduction of Coleco's Adam home computer this Christmas season may turn out to be the first real test of survival for low-cost, letter-quality printers. Coleco is betting heavily that the Adam's printer — only one component of the \$600 unit — will stand up to constant use and make the machine a winner.

Long used with computers in business, mainly to replace typewriters, letter-quality printers have yet to become serious contenders for home use; dot-matrix printers are much more common. Most buyers have one of several objections to letter-quality models: They are too fragile to be used around children; they are too noisy; they require frequent servicing; and, most importantly, they are too expensive.

Yet both Coleco and Atari (with its model 1027) have decided to battle those objections and sell letter-quality printers specifically to home-computer owners.

Coleco's printer is a central component of both the Adam and the firm's difficulties in meeting its original release date for the product. The Adam is touted as a low-cost word processor, and you can use its printer to print documents from storage, or you can use it with the Adam's keyboard much like a conventional typewriter.

All of the Adam's software is tied into its word-processing system, which is tied into the printer. Coleco blamed some of the system's delays on problems it was having with the software driving the printer. When the firm finally demonstrated some preliminary models to the press and prospective dealers, the company claimed to have worked out some of the problems. Some of those at the demonstration could not make the printer function properly, though, and since that time there has been growing skepticism about the ability of the Adam. Critics have worried that so cheap a printer might not be rugged enough to withstand use in word processing.

Coleco's Barbara Wruck, however, claims the Adam's printer will never need maintenance, as long as owners do not drop paper clips or bits inside it. "We are well accustomed to providing mass-market

merchandise to fit the needs of the consumer," Wruck says. The Adam's printer has been dropped and left on for days during its abuse testing, Wruck says, without problems.

Coleco admits the printer is not invulnerable. "We don't expect children to use the printer as a trampoline," Wruck says.

Observers who have been waiting for the much-delayed arrival of the Adam,

printer is quieter than its more expensive relatives. "It's a different noise," says Atari's product manager Margaret Harrison. "It's not loud or uncomfortable. It sounds more like a typewriter."

Kirby says the quality of the Adam's printer is "adequate," though not up to the quality of more expensive letter-quality printers found in business.

Other printer manufacturers are also skeptical about the Adam's printer. Tom



*The Atari 1027 Letter Quality Printer uses a nonremovable impact-print tube with print all around it. As the machine prints, the tube rotates and slides back and forth.*

though, tend to be skeptical that the unit's printer will satisfy the buyer.

"I have never been impressed by the Adam printer," says Chris Kirby, an analyst who tracks Coleco for the investment firm Sanford Bernstein of New York City. "It's very loud and very slow, even though Coleco has taken steps to improve it."

Kirby says youngsters doing their homework with the Adam could cause a ruckus. "You can hear that thing all over the house," he says.

Any letter-quality or "impact" printer is bound to be noisier than dot-matrix and especially thermal printers. In contrast to Coleco, Atari claims its letter-quality

Priestley, general manager of the personal-computer division of NEC Home Electronics U.S.A., thinks the Adam's printer is too slow. He notes that the Adam may not be able to print boldface, superscripts and subscripts. The printer's speed is 120 words per minute — not fast for an office printer, but Coleco believes it's fast enough for family use. The Adam's printer can print in both directions, which accounts for some of its speed.

Wruck also stresses Coleco's experience in testing its toys — items with a high need for safety and durability. "[The] Adam has been subjected to every imaginable state and federal regulatory test," she says.



Atari's 1027 Letter Quality Printer has been marketed in stores for several months at the price of \$349. When combined with an Atari 600 computer, a cassette tape recorder and the AtariWriter software cartridge, the 1027 permits letter-quality printing of computer-produced documents for about \$100 more than the Adam.

Show, the 1027 on display had some alignment problems. The printer also wasn't typing the whole letter all the time, making the result look somewhat like a typewriter that needed maintenance.

Harrison says Atari and the manufacturer of the 1027 have, for the most part, cleaned up these alignment problems. It still isn't perfect, though.

owners won't have to use them much. In fact, Coleco suggests the owner troubleshoot the printer first, by consulting instructions supplied with the computer, before calling the firm or visiting a service center. Atari already has its service-center network in place.

Both companies have set up toll-free telephone numbers for customers who

Adam, the ColecoVision Family Computer System, the first complete, single package computer system, includes all the hardware and software necessary for immediate and effective use in the home.

*Shown above is a printout from the Adam's low-cost letter-quality printer, reproduced at its actual size.*

Yet there are subtle differences between Coleco's printer and Atari's printer. Coleco uses standard, interchangeable, plastic daisy wheels. Atari uses a different type mechanism, which cannot be removed. In addition, Coleco relies on ribbon cartridges, and Atari's 1027 uses an ink cartridge instead of a ribbon.

The print wheel supplied with the Adam contains pica type — ten pica letters measure an inch. Buyers can go to any store that sells daisy wheels and for about \$10 buy additional wheels and use them on the Adam.

The Adam, however, uses only daisy wheels. More expensive letter-quality printers can use metal print wheels, which last longer and retain perfect print quality longer. The Coleco manual recommends against using metal print wheels with the Adam.

Atari's 1027 printer does not use a daisy wheel. Instead, it has an impact-print tube with type all around it, somewhat similar to an IBM Selectric typewriter ball. As the 1027 prints, this tube rotates and slides back and forth until it reaches the right letter.

One disadvantage of the tube: It's not removable, so owners can't get the wide variety of typefaces they can get with the Adam letter-quality printer.

Atari's Harrison says the 1027 can type all Atari letter and number characters. It cannot type Atari graphics symbols, though; in fact, most letter-quality printers, even the more expensive ones, do not easily reproduce graphics.

Atari, like Coleco, has had its troubles with low-cost letter-quality printers. Earlier this year, Atari had difficulties with the print quality of the 1027. For example, at this summer's Consumer Electronics

"If you print column after column, you may notice a little movement," she admits. Still, the 1027 offers "quite good quality" at a low price, according to Harrison.

The Atari 1027 requires some maintenance. It comes with its own bottle of oil, and Atari recommends oiling it once every four months by putting two or three drops on the plastic gears under the printer's door.

In case the printers don't hold up as well as their makers claim, the firms are setting up systems to deal with problems. Wruck says Coleco is setting up "hundreds of service centers across the country," even though the company hopes Adam

have problems.

If these ultralow-cost printers do not succeed in the marketplace because of lack of speed, quality or quiet, other manufacturers such as NEC stand ready with slightly more expensive printers. NEC has released The Authentic 15LQ, a combined friction-feed and tractor-feed printer that can use metal daisy wheels. The 15LQ sells for \$695 and can do boldface, underlining, subscripts and superscripts.

NEC's Priestley says the 15LQ will take more of a beating than the Atari or Coleco printers. It seems to boil down to the old adage: You get what you pay for. Coleco and Atari are betting big that their new printers are worth paying for. ●



*Coleco's Adam printer uses standard, interchangeable plastic daisy wheels. It comes with a print wheel that contains pica type; you can buy other wheels.*

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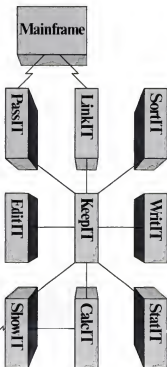
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# Review: Radio Shack TRS-80 Model 4P

BY TIM DANIELIUK  
Contributor

It is ironic that just days after the demise of Osborne Computer Corporation, Radio Shack announced its first transportable TRS-80, the Model 4P. From the looks of things, the 4P is going to be a smashing success!

The TRS-80 Model 4P is designed to

two disk drives; both are "half height" floppy-disk drives. They use single-sided, single- or double-density, 40-track diskettes. No cassette storage is supported by the 4P, so there is no connector for such a unit. As with the Model 4, there is a parallel printer port, an RS-232 serial port and an expansion connector on the back of the 4P.

There is no provision, however, for

spring-loaded Reset button. You can detach the keyboard from the main computer housing; it is connected to the system via a shielded cable. The cable is not coiled, but it is long enough to allow you to move the keyboard about 16 inches from the main unit. The keyboard has small "pop-up" plastic feet that allow it to sit on a desk at a comfortable angle for typing. The keyboard and cord are stored in a small storage compartment in the main unit, directly below the video display and disk drives. A front panel covers the entire

*The Model 4P is truly transportable.  
It's neither so large as to be awkward  
to carry, nor so small as to make the  
screen and keyboard unusable.*

be almost identical functionally to the standard desktop Model 4. The 4P also runs nearly all existing Model III software. To run such programs, however, you must ensure a copy of a special file called MODEL4/III is present on the disk containing the application program. Model 4P looks for this file when it needs to use a Model III operating system. There is also a procedure that allows you to use Model III programs stored on so-called self-booting diskettes.

When you want to use the machine with programs for the Model 4, the 4P runs as you'd expect. The TRSDOS 6 operating system runs identically on the two machines, and you can exchange programs and data files between them with no difficulty. Moreover, you can read and write diskettes using formats from the Model I or III without any conversion utilities. This gives you complete media compatibility between a Model I, III, 4 and 4P!

As with the standard Model 4, the video is organized in an 80-character by 24-line display when you use TRSDOS 6. The Model 4P can also run CP/M Plus, though Radio Shack has not yet released this operating system. We were able to use Montezuma Micro's version of CP/M 2.2 on the 4P, however.

The 4P comes equipped much like the regular Model 4, though there are minor differences. The 4P is only available with

easily connecting additional floppy-disk drives. Though Tandy does not support it, the 4P can use more than two floppy disk drives. Adding more drives is a matter of making and installing a four-drive cable, and you can bet that something along these lines will quickly become available through third-party vendors.

The other major difference between the 4 and the 4P is that the latter's video display measures only 9 inches (the desktop Model 4 uses a 12-inch monitor). This was no doubt necessary to keep the size of the machine reasonable. The 4P's display has a low-glare matte finish that substantially cuts down reflection from ambient light. The display is white on black, though there are reports that Tandy will be offering a green-screen option for this machine.

The keyboard follows the Model 4 layout exactly, and it includes a numeric keypad, three function keys and a Control key.

The Model 4P is truly a transportable computer. It is neither so large as to be awkward to carry, nor so small as to make the screen and keyboard unusable. The main unit is 16½ inches wide, 9½ inches high and 13¼ inches deep, and it weighs 26 pounds. It contains the video display in the center and the two disk drives to the right. The left side of the front panel houses the on-off switch, contrast and brightness controls for the video and a

## InfoWorld Report Card

### TRS-80 Model 4P

	Poor	Fair	Good	Excellent
Setup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serviceability	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Summary:** Radio Shack's first transportable TRS-80, the Model 4P, is an outstanding product at an excellent price. It incorporates features that will appeal to a wide audience of computer users and programmers.

**Product details:** List price, \$1799. Equipped with Z80 CPU; TRSDOS 6.1 or CP/M; 128K RAM (64K standard); and two half-height, 5-inch, single-sided, double-density disk drives. Includes RS-232 serial port and parallel printer port. Direct-connect modem and high-resolution video display are optional. Manufactured by Radio Shack, One Tandy Center, Fort Worth, TX 76102; (817) 390-3700.

main unit for transporting the system.

The rear of the 4P contains the connectors for expansion ports as well as the parallel printer and serial ports. There is also a blank panel that covers an unused opening, presumably for the integral-modem option Tandy is offering for the machine.

Internally, the 4P is constructed like no previous Radio Shack computer. Everything is completely shielded by a metal cover. The rugged internal construction of the 4P features gold-plated connections, which should make this a very reliable machine.

Tandy has also seen to it that there is room in the 4P for popular Model III/4 add-on products, such as the high-resolution video board.

The 4P is comfortable to use, and neither the keyboard nor the video display suffers in any way from the smaller packaging. The size and layout of the package speak of a carefully thought-out mechanical design that not only emphasizes portability, but function as well.

The Model 4P also represents a substantial improvement in performance over the Model 4. The latter has some small but irritating flaws, which are completely cured in the Model 4P. The 4P's video is hands down the best Tandy has ever built in any of its machines. It compares favorably with the best mono-



*The Model 4P, Radio Shack's first transportable TRS-80, is an outstanding product at an excellent price. The rugged internal construction should make this a very reliable machine.*

power supplies are hefty. On both the Model III and 4, you can notice a bit of screen "shrinkage" anytime a disk drive is first engaged. This phenomenon is almost

be fairly new to even seasoned microcomputer users. Perhaps Tandy will offer a separate manual that will contain more tutorial information.

Unlike previous TRS-80 documentation, this material, much like that of the Model 4, does not contain any technical information. Tandy does, however, publish a separate technical document to cover the machine.

If your primary interest is simply using your TRS-80, the introductory information contained in this documentation is probably fine. If you are a more advanced user, however, this documentation will require a bit of extra study if you wish to understand it thoroughly.

Outside of the documentation problems for advanced users, there is nothing substantially negative to say about the TRS-80 Model 4P. This computer is extremely well built, a delight to use and a functional, transportable machine. In fact, the only thing that ought to be changed in the 4P is the addition of double-sided disk drives instead of single-sided units. Perhaps Tandy will offer this as an option later.

The Model 4P, much like the Model 100, is an outstanding product at an excellent price. It incorporates features that will appeal to a wide audience of computer users and programmers, yet the price of a complete system is only \$1799. You will have to look hard to find a better transportable computer. Even if you do look, you're probably going to end up buying the 4P. ●

## ***Outside of the documentation problems, there is nothing substantially negative to say about the TRS-80 Model 4P.***

chromatic monitors around. On a smaller screen, characters always seem to look a bit fuller and better formed because of the closer spacings between the dots.

There's more to it than that in the 4P, though. The dots are focused and almost perfectly round. The acid test here was comparing the 16 × 64 display on a Model 4 against the same display on a 4P. The Model 4 video was always a little fuzzy, and the dots weren't well formed. The 4P's display, on the other hand, consisted of razor-sharp, round dots that were easy to look at for extended periods of time.

The matte finish on the screen's surface is remarkably effective in eliminating reflections from ambient light in the room. Our only complaint about the 4P's video is that there isn't enough range in the brightness control. This is not a major problem, however, as we used the unit in a brightly lit room and had no difficulty viewing the screen at any time.

Another nice touch on the 4P is that its

entirely absent in the Model 4P.

We also liked the 4P's keyboard a great deal. Though it is identical in size with the Model 4's keyboard, the 4P has a much better feel. The tactile response is a bit more positive, and you will probably have less of a tendency to mistype characters.

The Model 4P is accompanied by a setup manual and a DOS/BASIC manual. The portions of the documentation concerning the TRSDOS 6 operating system are adequate. The manual explains each major command in the operating system and in BASIC and shows relevant examples. Because of the complexity of the operating system, however, Radio Shack also should have included a more conceptual discussion of the specific applications for each of the commands. This operating system is conceptually much like UNIX because of its ability to treat each peripheral hardware device equally and permit a flexible flow of information from program to program. These concepts will

# Review: Drive C:

BY MICHAEL SWAINE  
Senior Editor

**D**rive C: is an electronic disk for the Osborne 1 computer and, like any electronic disk, it embodies some trade-offs. If you use an Osborne for more than brief periods, though, the improvements in speed over using floppy-disk drives that Drive C: affords makes it

SYSGEN and SETUP utilities all bypass part of the standard CP/M operating system. Using them with Drive C: requires you to use a well-documented "trick."

The trick is worth describing, since it demonstrates one of the more useful features of Drive C:. When you use one of the programs mentioned with Drive C:, the CP/M operating system will execute

*An electronic disk is a device that behaves like a disk and disk drive but uses random-access memory instead of recording media.*

at least worth considering.

An electronic disk is a device that behaves like a disk and disk drive but uses random-access memory instead of recording media. It allows you to manipulate files as if they were on a floppy disk, but makes file access faster and lets you work with larger files. Its major drawback is that you are at the mercy of fluctuations in electric power, since RAM loses its information if power is lost, even momentarily.

Electronic disks are most useful for Osborne owners who do more than occasional work, since you have to transfer information to the electronic disk from diskettes each time you use the machine, and later store it on the diskettes, before you shut the Osborne off. (For brief uses of the computer, the time it takes to move the information around offsets any speed advantage the electronic disk offers.)

Drive C: gives you either 192K or 384K of additional storage (that translates into 188K or 380K usable space), the equivalent of one or two additional double-density diskette drives. It fits in the right-hand diskette-storage pocket of the Osborne, and it resembles a disk drive in that it has a tiny red light that comes on when Drive C: is being used by a program. The unit is not completely identical to a diskette: There are several system-utility programs that don't work normally with Drive C:. The COPY, MOVCPM,

the program and then attempt to turn to normal function using information stored on the floppy disk in the left-hand drive. Since activating Drive C: has changed the disk designations, however, the machine will fail at this point, and you will have to press the Reset key to overcome the problem.

You might expect that action to cause Drive C:, like other RAM in the Osborne, to lose its information. Yet pressing Reset does nothing to the files stored in Drive C:. You can simply reactivate Drive C: and continue what you were doing. Because of this, it is also possible to change disk designations on the fly, without affecting data on the electronic disk.

The physical installation of the unit is easy: You slide the unit into the disk pocket and plug in two cables. No tools are needed. To prepare it for use, you need only type a short command line.

The chief virtue of electronic disks is speed, and Drive C: is fast. We did some comparisons with floppy drives to obtain some typical times. Copying a 22K file from Drive C: to Drive C: took about a second; from Drive C: to floppy disk, it took about 5 seconds; and from floppy disk to floppy disk, 15 seconds. A global search and replace in a 22K WordStar file, changing all T's to \*s, took 20 seconds with both WordStar and the data file on Drive C: and two minutes with both on floppies.

Drive C: ought to be able to stand up to the abuses to which the Osborne itself is subjected, so we lugged our Drive C:-equipped Osborne to and from the office for three weeks, up and down stairs and bounced it on the back seat of a VW Beetle. We left it on for 12 hours at a stretch, used it for professional word processing for three weeks and left a simple disk-accessing program running on it for eight hours, all without problems. Drive C: certainly gets warm in operation in the tight disk pocket, but we encountered no heat problems or BIOS errors

## InfoWorld Report Card

### Drive C:



	Poor	Fair	Good	Excellent
Setup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Serviceability	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Summary:** Drive C: is an electronic disk for the Osborne 1 computer that fits easily into the machine. Anyone who uses an Osborne more than sporadically could benefit from the speed and convenience Drive C: brings to using the machine.

**Product details:** List price: \$595 for 192K version; \$895 for 384K; \$350 for upgrade from 192K to 384K. Available for single- or double-density Osborne 1, old or new version, with or without 80-column upgrade. Includes external video connector and software for archiving large files. Manufactured by Drive C:, 1690 65th Street, Emeryville, CA 94608; (415) 652-3222.

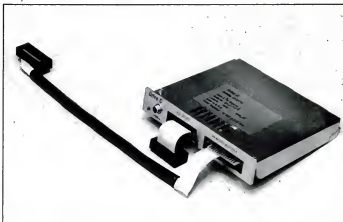
despite being subjected to heavy use.

Drive C: also has a built-in video jack, so you can use a separate display monitor without buying a special adapter.

Another advantage of Drive C: is that you can use it to create and manipulate large files. An archive program supplied by the manufacturer allows you to store, on several floppy disks, files that are larger

## ***The physical installation of the unit is easy: You slide it into the disk pocket and plug in two cables.***

than the capacity of an individual disk. The archive program catalogs files it puts on a set of disks, then stores the catalog on the disks. You use a second program to read the catalog and retrieve files from the disks. We used the two programs effectively to organize disk storage for a large



*Drive C: gives you 192K or 384K of additional storage, equal to one or two additional double-density diskette drives. It fits in the Osborne's right-hand diskette-storage pocket.*

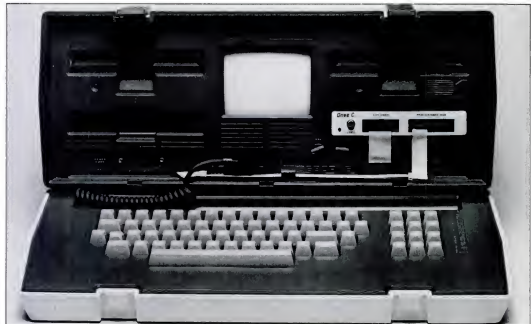
writing project. They are, however, slow; for routine copying of small files, the CP/M PIP command is more efficient. The Drive C: instructions properly recommend using PIP for such purposes.

By and large, the documentation is a test of keen eyesight. The 17-page manual is printed in type so small it must have been inspired by the Osborne 1 character

set. It has a preliminary look, though the essential information is all there.

Each section starts with a summary of the section's contents. At 17 pages, it doesn't really need an index and doesn't have one. The table of contents and general organization are adequate to let you find anything in it.

The documentation also includes typed



*We left our Drive C:-equipped Osborne on for hours at a stretch and left a program running on it for 8 hours without problems.*

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## HARDWARE

pages of application notes. These are primarily errata and information that ought to be incorporated into the next edition of the manual, such as detailed instructions for using particular printers.

Application note #1 is a useful question-and-answer list that, for example, explains that Drive C: won't allow you to create larger SuperCalc spreadsheets. (Drive C: can't be treated as general-

*By and large, the documentation is a test of keen eyesight. The manual has a preliminary look.*

purpose memory; you have to use it just like a disk.) Drive C: also can't be divided by the operating system into different areas; it must always be treated as a single unit of storage.

The manufacturer has done an exemplary job in packaging the elements of this product. It fits snugly into the right-hand disk-storage pocket — there are mechanisms for adjusting the device to fit pockets of varying height and width. Installation does not require opening the Osborne.

A ribbon cable coming out of the device has to stretch to the other side of the Osborne to plug into the IEEE port, but, surprisingly, manages not to get in the way. You can leave Drive C: in your Osborne permanently; it doesn't interfere with closing the case. For servicing, you can remove Drive C: by unplugging two connectors and pulling the device out.

Except for the four system-utility programs mentioned above — which most owners would probably not need to use in conjunction with Drive C: — Drive C: functions exactly like a very fast disk drive. The only new thing you need to learn in using it is to store files on Drive C: onto floppy disks before shutting off the Osborne.

To describe Drive C's main advantage as speed is inadequate. It affords you an increase in efficiency of the Osborne 1. Word processing, data-base manipulation and program development become smoother processes without the long pause while you store files on diskette. Drive C: makes the Osborne a more useful tool.

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**Cards keep cool:** PCool is an IBM PC or PC XT expansion-card cooling fan. It is designed to solve various heat-related problems such as parity errors, printing of random characters on the screen, machine lock-up, printer communications errors, intermittent starting of the disk drives and writing on the disks.

PCool effectively reduces the temperature rise caused by the expansion cards or disk drives. The fan mounts on the front of the PC chassis under the PC cover and causes an average 15°F drop in temperature.

The PCool kit retails for \$99.95 and includes a six-month warranty. PCool includes all the parts necessary to upgrade the PC or PC XT. Analytic Information Processing, P.O. Box 966, Danville, CA 94526; (415) 837-2803.

Grove Village, IL 60007; (312) 593-3211 or (800) 323-6647 outside Illinois.

## TRS-80 Full-Travel Keyboard:

The Model KB-500 keyboard from Key Tronic Corporation is a replacement full-travel keyboard for Radio Shack's TRS-80 Color Computer. The keyboard features programmable function keys, complete legend description, standard typewriter layout, nonstick keys, high spring force on Clear and Break keys to prevent entry error, full sculptured keypad array with low-profile keytops and locating "pipes" on home-row keys. The keyboard retails for \$89.95. Key Tronic Corporation, Department E2, P.O. Box 14687, Spokane, WA 99214; (800) 262-6006.

**International Keyboard with**



The Model KB-500 keyboard for the TRS-80 Color Computer

**Monochromatic monitor:** The SG-1000 CRT Monochrome Monitor with scanning frequency, video circuit, environment temperature and humidity and power-input abilities have been announced by Sakata U.S.A.

The high-resolution CRT has a green-phosphor screen with a nonglare, high-contrast faceplate. According to Sakata, the monitor reproduces sharp and distinct characters or graphics.

The monitor is fully interchangeable with the Apple II, Apple III, Atari 800, Commodore 64, IBM PC, NEC PC, Osborne, TI-99/4A and VIC 20. The retail price is \$129. Sakata U.S.A. Corporation, 651 Bonnie Lane, Elk

the Flip of a Switch: Install the Diplomat and you can change your Apple IIe's American keyboard into an international keyboard by flipping a switch.

You can choose from eight options, including German, Spanish, French, French-Canadian, Italian, Hebrew, British and Dvorak. Each permits you to generate and display foreign characters on the Apple IIe.

The kit comes complete with a character-generating ROM with an adapter board, a keyboard ROM, EPROM extractor tool, keypad conversion kit with keypad remover and an illustrated installation manual.

The Diplomat retails at \$298.



The Model HR-15 Daisy Wheel Compact Printer from Brother International is adaptable to most personal computers.

International Solutions, P.O. Box 2381, Saratoga, CA 95070; (408) 354-2988.

**Digital Camera Lets Computers See:** Micro D-Cam, a new digital image sensor, gives computers the dimension of sight for uses such as graphics, pattern and character recognition, robotics, process control and security. It uses a silicon array to sense light and includes menu-driven software that allows you to interpret, enhance or store images with your computer.

The Micro D-Cam offers continuous exposure control. Experienced computer users can incorporate it with other programs. The software includes utilities for auto exposure, multilevel gray scale, screen dumps, picture storage and image enhancement.

Both IBM PC and Apple II versions are available for \$295 each. The package includes the complete Micro D-Cam unit assembled and tested, interface card, extension cable, IS32 Optic RAM, lens, remote housing, operators' manual and utility software. The Micromint, Inc., 561 Willow Avenue, Cedarhurst, NY 11516; (800) 645-3479.

## Compact Daisy Wheel Printer:

The Model HR-15 Daisy Wheel Printer from Brother International has automatic underlining, graphic printing and superscript and subscript operations. The printer can type in either boldface print or red-color print.

Four typing pitches are of-

fered: 10, 12, 15 and proportional spacing. The 15's speed is 13 characters per second in bidirectional movement.

The ribbon cassette is available in correctable carbon, one-time film, multistrike and fabric.

The HR-15 is adaptable to most personal computers. The suggested retail price is under \$600. Brother International Corporation, 8 Corporate Place, Piscataway, NJ 08854.

**Radio Shack Model 16B:** The TRS-80 Model 16B comes with a self-contained, 1.25-megabyte, 8-inch floppy-disk drive and a 15-megabyte hard-disk drive, as well as 256K RAM.

This system allows users to access up to 15 million characters of information on hard disk. An additional 12-megabyte external hard-disk drive can be added for a total of about 9000 pages of hard-disk storage.

The Model 16B with Hard Disk comes with the TRS-XENIX multiuser operating system.

The Model 16B is available for \$6999 at more than 400 Radio Shack Stores and dealers nationwide. Tandy Corporation/Radio Shack, 1800 One Tandy Center, Fort Worth, TX 76101.

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Compiled by Carol Ranalli

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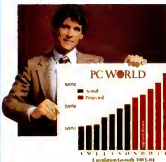
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# Can the neighborhood computer store survive?

BY TOM SHEA  
Reporter

In the 60s, big supermarket chains virtually ran little mom-and-pop grocery stores out of business. With variety, high volume and big-league management and marketing expertise, the big guys drew customers away from the corner grocery stores in droves.

Now a flood of mergers and acquisitions is creating chains of computer stores similar to the big supermarket chains. And the question is: Can the little neighborhood computer stores survive?

In the past few months, Businessland of San Jose, California, has acquired three computer stores in Arizona; CompuShop of Richardson, Texas, has acquired two stores in northern California. Computer City, in southern California, merged with the holding company that owns and franchises Computer Mart stores in Michigan and Canada. In addition, ComputerCraft, which began as a single store in Houston, Texas, has acquired 13 stores in Austin, Dallas, Fort Worth and San Antonio since the beginning of this year.

Large chains are getting larger, and even smaller groups of stores are expanding geographically, turning into chains.

Will these big chains mean the death of the neighborhood computer store? And if the neighborhood store goes, will consumers have an even harder time finding good service?

No, the neighborhood computer store will not disappear. But there may be fewer of them and they will have to specialize, observers say.

"The computer-retailing industry is maturing," explains Pam Inserra, vice-president of retail analysis with Future Computing of Richardson, Texas. "The stores are no longer mom-and-pop or techie-oriented operations. They are now run by people who are more knowledgeable about retailing and who are more business oriented."

Inserra notes that retailers are using four strategies to expand the size of their operations: franchising, going public, internal expansion and mergers and acquisitions. The most popular method at the moment seems to be going public, although all four methods are in evidence.

At least seven computer retailers have

gone public in the last two years; four of them — CompuShop, Computer Factory, Datel and Computer Craft — have done so in the last year. In addition, Inserra says, four more computer-store chains have just filed letters of intent to go public. These are Pathfinder Computer, World of Com-

puter stores. According to a spokesman for ComputerLand, the mom-and-pop store is not threatened by the arrival of the giant chains. ComputerLand, with more than 500 outlets, is the largest by far of the computer retail outlets, except for Tandy/Radio Shack, which carries only its



'Big-boy' ComputerLand has more than 500 retail outlets like the one above.

puters, Businessland and Entre.

The simple reason for all the expansion is that retailers see a lot of money to be made in computers. Other factors are at work, too. The strategy of growth is "to meet the competition as they perceive it," Inserra says. She points out that some store managers see the mass merchandisers (such as K mart and J.C. Penney) as "waiting in the wings." The mass merchandisers have been content to concentrate on little home computers so far, she says, "but the potential is there."

Despite the trend toward expansion, however, both large and small stores agree that there will always be a spot in the marketplace for neighborhood com-

puter stores.

"We're in an industry that's expanding with a compound growth rate of between 30% and 40%," says Vin O'Reilly, ComputerLand's vice-president of development. "In an industry growing that fast, I'd be surprised if the independents would fail because they lost business to ComputerLand."

ComputerLand stores are franchises, not chains owned by a single company. Within the franchise network, however, some owners own more than one store — as many as ten stores, for some individual owners.

O'Reilly's view is that the whole computer-distribution channel is growing

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so rapidly at this moment that it forms a huge umbrella with enough room to include many retailers, large and small. "No other industry on the face of the earth is growing at that rate," he points out.

The success or failure of a store will be determined by its quality, not its size, O'Reilly believes. "It would be naive to think that some stores aren't going to try it and fail. All quality stores will survive, and those that are less than quality won't."

On the other hand, Kenneth Lim, a research analyst at Dataquest in San Jose, California, sees hard times ahead for the neighborhood computer store. "It does look pretty bad for the small individual store selling computers," Lim admits. "I don't think they'll disappear altogether, though. There won't be as many, but quite a few will survive. The small stores have the lowest overhead. They can survive on smaller margins, too. This could mean they would offer lower prices, although not necessarily."

"It's funny. Many retailing stores started with one enthusiast — the small individual — selling to his friends and neighbors. But they've been out-classed by people with more skills in marketing and management."

One retailing chain confirms that the larger organizations will dominate. "Chains do have a major advantage," according to Businessland president David Norman. "We can support the products we sell," he says. "We put a lot of money into training our people, and we can attract experienced sales people who know computers." In addition to this "people ability," chains like Businessland can offer economies of scale produced by

the large volume of systems they sell, he says.

For the moment, Norman insists there is plenty of room for both large and small operations in the expanding retail marketplace, "but we'll see some consolidation in the future, probably starting next year [1984-1985] as markets tend to slow," he foresees. "Markets don't grow at this phenomenal rate forever," he points out.

Norman says the little stores will

their special baby, but perhaps none with such passion as the small store owners.

Jim Horowitz is president of Binary Systems in Newton, Massachusetts. The store sells a line of Canon microcomputers out of a two-family house that is zoned for business. It did about \$250,000 worth of business last year, selling only a few computers a month.

"We haven't made a million, but we've survived," Horowitz says. The big retail

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## *Everyone claims the customer support issue as their special baby, but perhaps none with such passion as the mom-and-pop store owners.*

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survive only by specializing in vertical markets, and the little stores see things the same way — to an extent. They can see the need to specialize, but they also claim they can give a level of personalized service and support to customers that the big chains can't duplicate and aren't interested in providing. The big chains don't agree, pointing out the amount of money spent on training.

"Those are all the same reasons we have for buying at ComputerLand O'Reilly says. "We create and support ComputerLand customers before, during and after the sale. At our stores, people find knowledgeable salespeople, seminars, education and service."

Everyone claims the support issue as

chains have neither the time nor the inclination to support their customers, he claims. "They're big for the short term" Horowitz says. "In the long run, we'll survive because we have a loyal clientele and we've built up a rapport with them."

According to Horowitz, it's really the little independents — many of them less than two years old — that are doing all the merging lately. "They have to merge," he says. "They haven't had time to develop loyal customers. They have to merge to survive. It's somewhat a shame, but I don't feel bad for them, because they just jumped on the bandwagon."

According to Jerry Novosielski, president of Harvest Computers in Cambridge, Massachusetts, "Not all independent retailers have a problem." Harvest is doing about \$2 million worth of business each year in its first store. It just opened a second store, the largest in New England, in September. "In New England, the independents with one or two stores are doing well," Novosielski says. "The national chains and the little independents that do less than \$2 million are the ones that are in trouble."

Many computer dealers feel there are getting to be too many dealers and that there's a shakeout coming that will be disastrous for the mom-and-pop operations. And some independents are happy to be absorbed by a large chain. CompuShop's strategy is to build new stores from scratch, but it has also acquired seven stores in Michigan and California. "Acquired stores think they've died and gone to heaven," according to Joe Harmon, vice-president of marketing with CompuShop. He said the new acquisitions are gratified to be part of a professional team.

All the independents InfoWorld talked



Mission Computer Center will soon have four retail outlets.

to, however, are certain they'll survive; they see specialization and service as the keys.

"Specialization is happening," according to Gerald Wright, president of the Digital Deli in Mountain View, California. "If you're going to be a generalist and sell everything to everybody, then you'd better be big," he says. "But if you're going to be a specialist, then you can be small."

The Digital Deli has one location and employs 18 people; the store has a large library of CP/M software and specializes in business applications, according to Wright. He's not so worried about large retail chains, but is concerned about computer sales that eliminate the dealer altogether. "Most of the deals the big manufacturers are cutting these days don't go through the dealer," he says. "There's a trend toward factory-direct computer sales. That wasn't the case three years ago."

Support is what will keep small stores viable, according to Ratan Lalchandani, president of The Computer Shop near Los Angeles International Airport. "I definitely feel we're going to survive. Only if the computer industry reaches the stage where everything is standardized and where you can plug any machine from any manufacturer to any other and have them communicate — only then will people need no support whatsoever," he says.

Videotapes, audiotapes and phonograph albums have reached that stage, "but in computers in the foreseeable future, that's not going to happen," he asserts. "When you can hook up printer XYZ to computer ABC and have it print out right away," then and only then will the need for small stores that offer personal support disappear and the small

they are not competent," he says. "They're not able to sell them."

What, if anything, will be lost if the neighborhood stores do disappear?

Lim thinks the variety of computers will decrease if the chain stores become dominant. "The chains tend to focus on a specific target audience, mainly business. They don't like kids in their stores playing

***'If you're going to be a generalist and sell everything to everybody, then you'd better be big. If you're going to specialize, then you can be smaller.'***

stores with it, he believes.

To illustrate the importance of support and knowledgeable sales people, Lalchandani points to Sears Business Systems Centers: "Everywhere else, you have to wait four to eight weeks to get an IBM PC, but Sears is discounting them 20%, and it has them in stock," he says. How does he explain that? "Either the people at Sears are not competent to sell and support the computers, or there is a perception that

around with games when they're demonstrating an expensive business machine; they do anything to keep kids out. Neighborhood stores might develop more rapport with the customer. Perhaps they would carry a wider spectrum of equipment. Most chains are very scientific in their product mix — if a product doesn't meet a certain present level of profit margin, it's dropped. So they tend to carry fewer products."

## How ComputerLand bought its name

If ComputerLand seems a mite touchy about other people using the suffix *land*, maybe that's because it cost the company some hard cash to stake out the name for itself.

Ratan Lalchandani, president of The Computer Shop, a retail store near the Los Angeles airport, has been in the computer business since "the old days" of 1976. He tells the story of the time he went up against ComputerLand and won.

Lalchandani had originally called his retail store Computer Land, long before the giant retail chain claimed the name. At that time, ComputerLand was using the name Computer Shack. Radio Shack sued to stop it from using the Shack monicker. Computer Shack changed its name to ComputerLand,

whereupon Lalchandani jumped on the franchise firm with legal boots. "They settled by paying me off" in mid-1977, he says. "It was quite a substantial sum" — although he won't say how much. "It was more money than I made selling computers that year," Lalchandani says.

ComputerLand is now using four other computer-related businesses that use the suffix *land* in their names, among them Software Land and Businessland. "We had to give up the name Computer Shack," ComputerLand spokeswoman Chris Meister says. As for the lawsuits, "The same thing happened to us," she says.

ComputerLand won't comment further on the suits, pointing out that they are "still in litigation." —TS



Tom Ivers

"Chain stores will do anything to keep kids out," says Kenneth Lim of Dataquest.

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# As its stock falls, DEC looks upward to its Rainbow

BY PEGGY ZIENTARA  
Senior Editor

**D**espite gloom and doom speculation surrounding the recent nose dive of DEC (Digital Equipment Corporation) stock on Wall Street, the computer giant still has high hopes for its sputtering personal-computer line.

"Our recent stock-market problems have had no effect on the Rainbow's sales," states Barry James Folsom, product manager of DEC's Rainbow Group. "The 100+ [a recently introduced 10-megabyte hard-disk version of the Rainbow] is being enthusiastically accepted in the marketplace, and part of that is because IBM is having trouble getting PC XT's to dealers."

Although DEC reportedly shipped only 19,000 personal computers in the first quarter of 1983, as compared with the 25,000 that had been projected by securities analysts, Folsom claims that the firm was on target with 2000 Rainbow 100+ shipments this past October 18.

DEC has no plans to change its microcomputer marketing strategy "one iota," according to Folsom, although the firm has mustered its forces.

One tactic has been to put together several task forces to work on improving its order-processing turnaround time, which Folsom acknowledges is "not the best the company has ever seen."

In addition, DEC is "absolutely" addressing the problem of software not being available until several months after comparable IBM Personal Computer versions are introduced, Folsom asserts. "Some of our contracts with the number-one, -two and -three type of [third-party software] vendors indicate that on future releases, within a matter of five or six weeks after an IBM version, a Rainbow version will come out," he says.

"The real issue is that the character sets are different, so [the third-party software vendors] have to map the characters, and that takes a little time," he explains. "The reality is that they're going to rush to get the IBM PC version out first."

Within three months, Folsom predicts, DEC "may be first with some products" from third-party software developers. Although the Rainbow Group is not currently developing any Rainbow soft-

ware, DEC's Office Automation Group is working on three or four OA packages, some of which will run on the Rainbow, he notes. Those announcements are expected in four to six months.

DEC's internal reorganization, started a couple of months ago in an effort to focus marketing efforts more heavily on the personal-computer area, was another stumbling block for the firm. "In going through this reorganization, we didn't quite get our act together," Folsom says, "and we flubbed up some implementation issues, which are being fixed right now."

DEC's reorganization may have resulted in temporary confusion and some serious missteps, but "it will be worth it, because they'll end up with better marketing forces as a result," predicts Ellen Levin, an International Data Corporation market-research analyst.

Fiscal year 1984 is expected to be "reasonable," Folsom says. "Not up to what [some of] the other companies will do, but we see ourselves as being very aggressive by the latter part of 1984."

DEC, the number 2 computer maker overall — which from its start has ridden on IBM's coattails — announced its intention to sell personal computers for business use in May 1982, months after IBM made its decision.

It was almost a year later that DEC actually started shipping units of its Rainbow, DECmate II and Professional Series. The DEC line was slow to catch on in the wake of the already established market for the Apple IIe and the burgeoning demand for IBM Personal Computers and PC-compatibles.

Although the Rainbow initially suffered from poor marketing strategy, Levin notes, the recent addition of MS-DOS and other application software, the availability of the 100+ upgrade and placement in first-tier retail outlets "should help."

Even the Rainbow's initially inferior marketing plan was "better than those of DEC's other personal-computer products," Levin adds. "At least they're conforming to industry standards and have software and the product is in good retail outlets." Overall, the vendor "will be a pretty good contender in the market," she projects. "DEC can withstand the shakeout."

DEC itself feels the market is "playing out to Digital's strengths and skills," Folsom says. The firm has a good understanding of connecting personal computers to mainframes, an extensive service and support system and a firm hold



DEC's Rainbow 100+ can run over 750 applications; it is compatible with the Rainbow 100.

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in areas the next revolution in personal computing is expected to embrace — concurrent or multiprogramming operating systems, networking and communications.

"We've got Ethernet, DECnet and very good SNA [systems network architecture] skills for connecting both personal computers and minicomputers to IBM mainframes," Folsom says. "We feel the company is well-positioned, with a set of skills we can bring to bear on that revolution to add a lot of value to the market."

"I think the best thing DEC can do is to get the press to stop writing stories indicating DEC is worried," comments Meg Deering, marketing manager of Execom Computer Centers in Boston, Massachusetts, which sells DEC, NEC and Wang micros.

Sales of DEC micros at Execom are doing well in the vertical markets, Deering notes. But so-called cushy sales — sales to walk-in traffic — have been hurt by a discount machine DEC set up with local universities, which allows students to buy a Rainbow at close to dealer costs.

Despite this seeming lack of coordination with its dealers, "DEC is the best-supported computer in the industry," Deering says. Its Investment Protection

Plan, which covers all three products of the personal-computer series, offers on-site service for one year, including parts and labor; a toll-free telephone number to DEC's Customer Support Center for one year; a 30-day money-back return policy through January 31, 1984; operating-system updates for a year; and a year's

eight weeks to show a marked increase over past sales," he predicts.

The delayed interest in the products can be traced to DEC's phlegmatic marketing effort, King feels. "DEC has not done enough advertising, or [it hasn't advertised] in the right places," he notes. It's taken time for consumers to learn

## DEC has a firm hold in areas the next personal-computing revolution will embrace: concurrent operating systems, networking, communications.

subscription to DEC's users' newsletter.

Other dealers concur. "Sales of the Rainbow 100 and Rainbow 100+ have not changed radically in the past six or eight weeks," reports Allan Brewster King, executive vice-president of Microcon Computer & Software Centers in Watertown, Massachusetts. "However, there has been a substantial increase in interest, and I expect sales in the ensuing six or

about the hard-disk option, for example. Furthermore, "the Investment Protection Plan is very meaningful to consumers who are concerned about what happens if their machine gives up the ghost," he adds.

Calling the DEC product "first-rate," King projects the Rainbow will continue to be a slow starter "because of the nature of DEC's marketing strategy," but will "end up in the top three or four survivors."



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# Q&A: Gary Kildall

BY PAUL FREIBERGER  
Senior Editor

**G**ary Kildall is cofounder and chairman of the board of Digital Research, Inc. (DRI), of Pacific Grove, California, one of the largest personal-computer software companies. The firm is best known for developing the CP/M operating system, which helped establish the personal-computer software industry. During the past two years, it has begun selling a variety of programming languages. More recently, DRI has dropped hints about getting into the application-software business.

**What is your view these days on the industry?**

Now that IBM has entered the micro-computer market, to survive you either have to turn 90° away from IBM and do your own thing, or you have to do exactly what IBM is doing. The companies that are jumping on the PC bandwagon but aren't doing exact look-alikes are going to have problems.

Portables and battery-powered machines are areas that haven't been covered by the IBM PC at all. Another area we're looking at is developing software for things like the Godbout [CompuPro] machines, which are basically at the minicomputer end of the market.

**Why has Digital Research shifted from its traditional practice of working behind the scenes with manufacturers to selling directly to retail stores?**

It's not a shift; we've been augmenting what we've been doing. In the retail end, there's more opportunity, but software packages like Logo, for example, will sell better to OEMS [original equipment manufacturers].

**Is Logo available?**

It has been available for almost a month. We've shipped 4000 copies in four weeks.

**Did you develop DR Logo?**

I worked on it for a while. In Japan, Sony has an 8-bit version of it. We'll be releasing a generic 8-bit version (I don't know the exact date). DR Logo is written in C, and we've done some work tailoring



Gary Kildall, DRI's chairman of the board

it and have been fairly effective.

**What about DR Logo on the new IBM PCjr?**

I'm sure we'll have a version that will operate with [the PCjr] in rather short order.

**Integrated software and operating environments such as the Lisa and Visi On are in fashion this year. Will DRI have a product in this area?**

We have two things. Under Concurrent CP/M, we have a windowing system, which we'll show at COMDEX, that not only windows but allows concurrent windows. The system actually runs programs with application code in separate windows simultaneously. We have PC-DOS running under Concurrent.

Second, in Europe and Japan we've released beta-test copies of VIP (Visual Information Processor). VIP is a standardized interface for applications written in the C language, and for that reason is portable to various machines. The intention there is to provide a machine-independent operating system, as a front end for applications, that allows you to do menu selection in a standardized way. It has not been active in the U.S. yet. In Europe, they've got to do their own applications, in many cases. VIP runs on Z80 processors, on the IBM PC, on 8086 machines, on VAX [a DEC minicomputer], on Lisa. I think it runs on 22 machines.

**What kinds of applications will you**

**have in your windowing system?**

We're working with the CP/M library. We currently have about 20 applications that seem to be the most popular in town. Those all work with Concurrent CP/M and will work in windows.

**What about the highly rumored project called Monarch?**

We sent out, with VIP, a demo program called Monarch. There's more to it than just a demo, though. There's a lot of code there. That's all I can say publicly.

**Microsoft has made a major commitment to multiuser operating systems with XENIX. Do you have plans that go beyond MP/M [DRI's multiuser operating system]?**

I think we're going to see the evolution of Concurrent CP/M in that direction. It's more advanced than MP/M. The limitation is not the structure of the operating system but the limitations of the hardware.

**Is it frustrating in general to feel that you are pushing the hardware beyond its means?**

I think the major frustration is that there's a bandwagon effect that we've seen throughout this industry ever since it started. It's not like the large-computer industry, where there's a lot of evaluation of hardware and software technology. In the old days you could come up with a technically superior hardware and software product, and that would be the determining factor. But in the microcomputer industry, the driving force is not so much the technology as how many people have jumped on your bandwagon. In my estimation, it's unfortunate people are forced to ignore technological breakthroughs and put their efforts into marketing and brightly colored packages.

**Is your network ready?**

At COMDEX, we'll be demonstrating DR Softnet. It's a tremendous improvement over CP/Net. It will be compatible with any of our products. The number of users it can handle is virtually unlimited.

**Are you still having fun?**

Oh yeah, a lot of fun. I love talking to manufacturers about new technology, about areas that we'll get into. ●



# Heard on Tech Street



**BY JOHN GANTZ**  
Contributing Editor

**T**he good, the bad and the ugly: We're talking about the new issues market, and, let's face it, there are some aspects of a Clint Eastwood spaghetti western to it. Plenty of blood to be let, good guys wearing untidy duds and an audience that wants action, not acting.

This year, by the way, will set all records for new issue activity. Over 200 companies will go to the public till for sustenance. The last big year was 1969, the year before the really big crash.

The year 1969, you remember, was when the market was crazy enough to let a company called Foto-Mem go public in January at \$8 a share. By December, the stock was up to the mid-40s. Foto-Mem made the FM 390 photo-optical mass-memory unit.

Huh? Foto-Mem?

When Foto-Mem disappeared, so did all that stockholder investment.

So, thumbing through dozens of personal-computer-related companies registered for an initial public offering (IPO), we tried to keep that hapless Foto-Mem investor in view. For every class act, such as Lotus, Morrow, Ashton-Tate or Businessland, we found at least two of a more, well, Foto-Mem nature.

Let's look at three, picked more or less at random, and from each prospectus, see what we can augur.

**The Good.** Well, at least the not horrible. A company called Personal Computer Products, Inc. (PCPI), hopes to

raise close to \$4 million by selling 640,000 shares at \$6.25.

The company makes plug-in boards that allow Apple Computers to use CP/M and has hopes of making other similar boards — MS-DOS for the Apple, CP/M for the IBM PC. Founded 18 months ago by the former director of sales for what is now SofTech Microsystems, PCPI has actually made a net profit of \$63,400 on revenues of \$1.44 million over that period. Current assets outweigh current liabilities by a hair, and there's no long-term debt.

Book value of the company's stock, after IPO, will be \$2.30 a share; at \$6.25 a share, the stock will sell at 115 times the earnings of the year ended June 30, 1983.

All told, the company is in pretty good financial shape: major OEM clients are MicroPro International and Franklin Computer. Seasoned executives with computer-industry track records head the firm. Its overall market is growing.

The fly in the ointment is that Apple might begin to make a CP/M or MS-DOS board for the 11e. PCPI hopes that by then, it will be able to provide other compatibility-making products.

It might just go. D.H. Blair is the underwriter.

**The Bad.** At least the shakier. Select Information Systems, of Kentfield, California, was founded in December 1980 and hopes to raise \$4.5 million, not counting underwriter's fees, from the sale of 500,000 shares of stock at \$7 to \$9 (\$288,000 to selling shareholders).

At \$9, the stock will sell at a little more than double book value and at a P/E of 20 times first-half 1983 earnings.

Although the prospectus seems designed to give the impression that Select is rich in product offerings, its game revolves around its word-processing system (48,000 copies installed).

Proceeds from the public offering will be used to pay debts — over half a million just to an affiliate of the underwriter — and to increase sales and marketing.

Select's financial history is murkier than PCPI's. It's paying loans from the founders and from venture capitalists with stock. In one out-of-court legal dispute, a financial backer paid off a former officer, who claimed to own the Select word-processor copyright, and got stock in return.

Principle OEMs for Select's products

don't overwhelm us: Xerox Retail Stores (recently sold to a group of Texas businessmen), Victor Technologies (is the company still in business?), NEC Home Electronics (Zzzz), Altos, DEC and Telex.

The Select offering boils down to this: The price is reasonable if you think Select can hack it in a market dominated by MicroPro's WordStar.

The company, by the way, is warning investors that its recent earnings are an aberration. Although the offering doesn't turn us on, maybe we're prejudiced: We tried the word processor and didn't like it.

The underwriters, Evans Llewellyn Securities and H.J. Meyers & Company, didn't put their addresses on the prospectus.

**The Ugly.** Our friend Tom Lawton, publisher and editor of *Computer Services Report* of Belmont, Massachusetts, clued us into this one: Datasystems Software Corporation.

Admittedly, Lawton is about as crusty and cynical as they come, but he may have spotted one here. The firm, founded in July 1982, still refers to itself as a "development-stage company." It plans to offer 727,000 shares at \$6.25.

Its software, DataManager, facilitates the use of micros as data-entry machines. During its first year of operation, Datasystems racked up sales of \$119,000 and lost \$956,000; the balance sheet shows a difference between assets and liabilities of \$798,000 — in the "wrong" direction.

Each prospectus comes with a section called Risk Factors; Datasystems' lists 17 such factors. Lawton's favorite: "Use of Proceeds to Pay Officers' Salaries and Indebtedness." Of the \$4.5 million the company hopes to raise, \$832,000 of it may be used to pay officers' salaries over the next two years.

To Lawton, the Datasystems IPO is symptomatic. "The lore of Wall Street says you can tell when a bull market for new issues is nearing its end. Just look at the quality of the firms being offered, and when that starts to decline, you know the end is near. Now, this firm might ultimately do very well. It's just that in a less turbulent market, it wouldn't be going public. It would have to get financing from venture capitalists or banks."

To us, it's not attractive, but it's not Foto-Mem, either.

*John Gantz is editor of the Tech Street Journal, an executive newsletter on high-tech stock market and business performance. The newsletter is published by Technology Financial Services, which is registered with the SEC. The opinions expressed herein are those of the writer, not necessarily InfoWorld.*



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# Inside Track



BY JOHN C. DVORAK  
Consulting Editor

It looks as if the IBM-compatible MS-DOS TRS-80 is a sure thing, due to come out in the first quarter of next year. The company has already showed the motherboard to the technicians. The new motherboard is a little larger than the TRS-80 Model 4 or Model 16 main boards, so it will go into a completely redesigned cabinet.

Some Atari bigwigs have returned from Japan with gloomy reports. The fast-paced Japanese are continually bringing out new computer products. The execs predict that even IBM won't be ready for them when they make their move in about 18 months. Apparently the Micro-soft MSX standard for cheap machines is a big hit in Japan.

Anyway, everyone is demoralized in the low-end game business.

A Victor Technologies vice-president called to assure me that Victor does not plan to move its headquarters from Scotts Valley, California.

Strange Bedfellows Dept. Sanger-Harris, a chain of Texas department stores, is doing a joint-venture marketing experiment with ComputerLand. It is putting mini-ComputerLand stores inside the department store. This eliminates the need for the department store to worry about the technical problems encountered with a computer-sales department. Technical questions, software questions and service questions all found the merchandisers.

The cute part about the Texas story is that the department store wouldn't let the ComputerLand people sell Epson printers. It turned out the store was making too much money in another department,

where it sold the printers. So much for cooperation.

While on the Subject of Stores Dept. As most people know by now, Wayne Green Inc. has sold the Wayne Green magazines to publishing mogul Pat McGovern. Meanwhile, the company has decided to go into the retailing business with a chain of computer stores. As someone once said, "Why doesn't someone really compete with ComputerLand?" Whether this chain will be competitive or not, I don't know. I will say this: I hope they change the name. They plan to call it Bits-Et-Al, which sounds like an outcast village somewhere near Abu Dhabi.

Alan Cooper, cofounder of the pioneering software firm, Structured Systems, just left Digital Research to develop his own software. It will be the be-all, end-all critical-path package. Watch this column for further developments.

Books, Books, Books Dept. Every major New York publisher is going to roll out a line of computer books by June 1984. I'm doing some books for Dell called *Dvorak's Made Easy Guides*; *InfoWorld* is doing some *InfoWorld* books for Harper & Row; *PC World* is linked with Simon & Schuster; Mitch Waite just made a deal with New American Library and so on. The latest is that everyone is beginning to get cold feet about this deluge of books soon to hit the market at the same time. If any publisher backs out, it'll just mean more money for the Simon & Schuster runaway juggernaut, the way I see it.

Anyway, everyone was in town for the



Jeff Mayem, vice-president of The Friendly Bytes Company, demonstrates his company's electronic greeting card — complete with music and twinkling candles.

National Software Show, including New York literary agent John Brockman, who gave an excellent dinner party at San Francisco's Cafe American. Everyone was there except Doug Clapp. I sat next to Ted Leonsis, the newest millionaire in the group. He had just sold *List Magazine* (which he created) for more than a few million to International Thompson Business Press. Needless to say, old Ted was in a cheery mood. Ted's heritage is Greek, and he wanted me to start throwing dishes with him about halfway through the meal; luckily, calmer heads prevailed.

Hyping Your Friends Dept. The most interesting book deal I've seen was pulled off by my good friend Bill Bates. His next edition of the *Computer Cookbook* will be published by Doubleday. The publisher gave him over \$100,000 to switch from Prentice-Hall. Nice work, if you can get it. Bill is also running a small business selling the only known English translation of the MicroSoft-Japanese MSX standard (see above). You can get a copy from him for \$49.95 plus \$2.50 shipping. Write to: Bill Bates, Box 2139, New York, NY 10116.

Meanwhile, Michael Katz, a Harper & Row editor and kingfish of almanacs (*Everybody's Business*, the almanac of top corporations, is by his group) will be rolling out an inclusive microcomputer almanac. It has no title as yet. It will highlight companies and products, have cute stories, facts and numbers and even review the reviewers.

Look for a slew of start-up companies to come out with "software machines." The idea is to take a dedicated, hard-disk-based machine loaded with major packages (on the hard disk). The machine works like a vending machine. The customer punches in a Visa card number, the machine cranks out a diskette of the desired software and then a high-speed laser printer cranks out the manual. The buyer puts the documentation in a three-ring binder with the diskette, and off he goes. These machines can be installed anywhere as stand-alone software vendors. The business plans for these things show great lease potential and good profits on just a few sales. With no inventory to stock devices such as this should be a winner for the small retailer.

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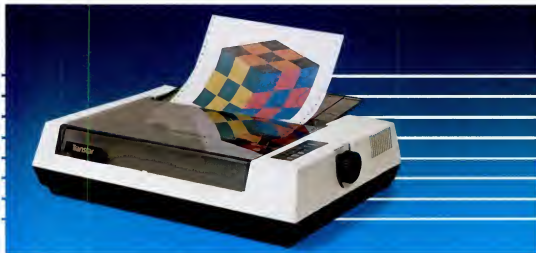
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